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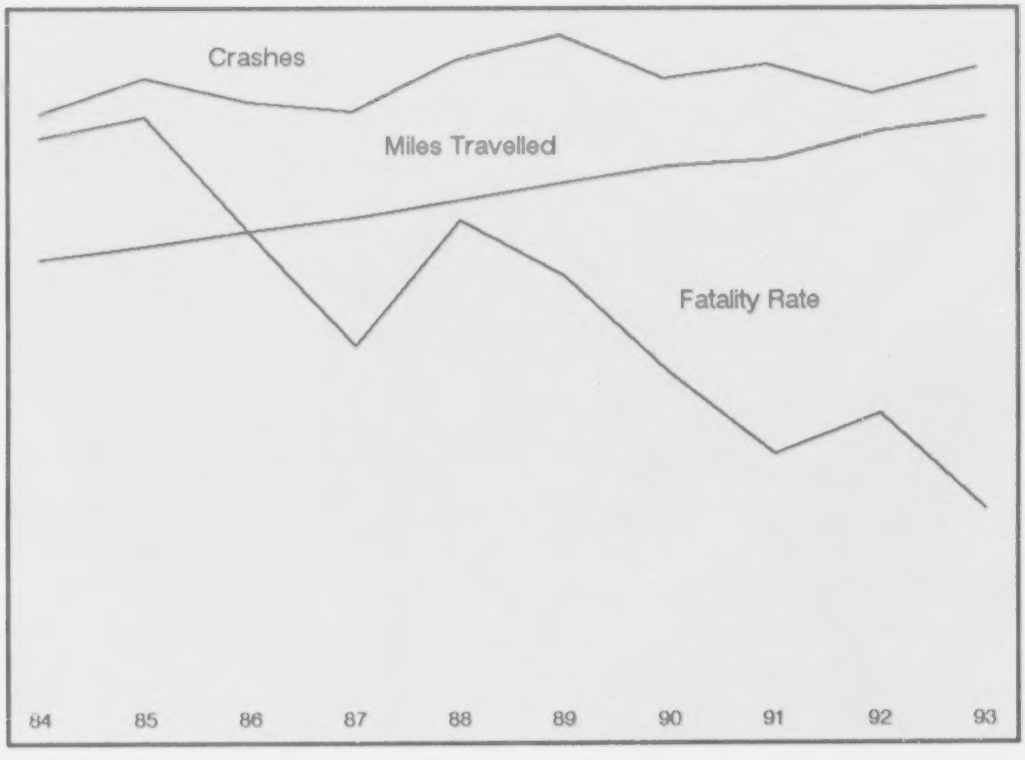
Minnesota

Motor Vehicle

CRASH FACTS

1993



MINNESOTA
MOTOR VEHICLE
CRASH FACTS
1993

A summary of crashes occurring on Minnesota roadways based on accident reports submitted to the Minnesota Department of Public Safety by investigating police officersand drivers

Produced by:
Office of Traffic Safety
Minnesota Department of Public Safety
444 Cedar Street
Suite 100-B, Town Square
St. Paul, MN 55101-2156
Phone (612) 296-9489
or (612) 297-4516
[TTY (612) 282-6555]

For more copies, contact:

Office of Public Education and Media Relations
Minnesota Department of Public Safety
444 Cedar Street
Suite 100-E Town Square
St. Paul, MN 55101-2156
Phone (612) 296-6652
[TTY (612) 282-6555]

(This material is available in alternative format, upon request.)

FFICE OF THE COMMISSIONER
5 Minnesota Street
ite 1000
rth Central Life Tower
Paul, MN 55101-2156
D ONLY: (612) 297-2100
x: (612) 297-5728
lephone (VOICE): (612) 296-6642

STATE OF MINNESOTA
DEPARTMENT OF PUBLIC SAFETY

June 1994

In the United States, there is a love affair with the automobile and an economic dependence as well. We have 200 million motor vehicles -- almost 8 for every 10 people in the country. However, a price is paid in exchange for this dependence. During the last decade, almost as many people died *each year* in traffic crashes as there were Americans who died in combat during all of the Vietnam War. Last year, 39,850 people died in traffic crashes nationwide. In Minnesota, 538 people died; another 4,139 were severely injured, and almost 41,000 received moderate or minor injuries. The total estimated economic loss for Minnesota alone was $1.4 billion.

A major theme of the Department of Public Safety is that even though the term "accident" is often used, these events are not just random occurrences that can not be avoided. There are specific, practical steps that you can take to avoid traffic crashes, and to reduce the severity of crashes that do occur.

The following list provides the most important steps you can take:

- **Pay Attention.** Drive defensively. Yield to pedestrians and other vehicles that have the right of way. Do not follow too closely.
- **Don't Drive when Impaired.** Never drive while intoxicated or under the influence of alcohol or other drugs. Impaired driving greatly increases the risk of a serious crash causing injury or death. Almost 40% of traffic deaths last year were alcohol-related. Any alcohol consumption prior to driving can cause some impairment and should be avoided. DWI law enforcement in Minnesota is vigorous and the consequences are appropriately harsh. Even a first DWI arrest can lead to over $10,000 in fines, fees, and insurance costs -- plus jail terms, license revocation, and treatment requirements.
- **Don't Speed.** Last year, speed was the most commonly reported immediate causal factor in fatal crashes. Always drive at speeds that are legal and safe for conditions.
- **Wear your Seat Belt.** If you are in a crash, your best chance of survival comes from using your seat belt. Always use your safety belts, and always use child safety seats for small children.

Minnesota Motor Vehicle Crash Facts is required by statute, but it is also a concrete expression of the Department's commitment to monitor and control the traffic crash problem. The Department has programs to promote traffic safety and is strongly committed to enforcing Minnesota's traffic laws.

Sincerely,

Michael S. Jordan
Commissioner

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DEFINITIONS

Accident -- See motor vehicle crash.

Alcohol Concentration -- The level of alcohol in a person's body as measured by blood, breath, or urine.

Alcohol-Related Fatal Crash -- A crash that results in one or more deaths and in which the investigating officer suspected alcohol involvement or in which the results of an alcohol concentration test were positive for any driver, pedestrian, or bicyclist involved in the crash.

Alcohol-Related Fatality -- A death resulting from an alcohol-related crash.

Alcohol-Related Injury -- A non-fatal injury resulting from an alcohol-related crash.

Alcohol-Related Injury Crash -- A non-fatal crash in which one or more persons are injured and in which the investigating officer suspected alcohol involvement for any driver, pedestrian, or bicyclist involved in the crash. (Since only the officer's perception is used in this definition, alcohol-related injury crashes and injuries are probably underestimated.)

Alcohol-Related Property Damage Crash -- A crash in which no one is killed or injured and the investigating officer suspected alcohol involvement for any driver, pedestrian, or bicyclist involved in the crash.

Bicycle Crash -- A motor vehicle crash involving one or more bicycles.

Child Safety Seats -- Safety devices designed to fit in motor vehicles that keep children securely in place. The seats are required by law for children under four years of age.

Crash -- See motor vehicle crash.

Driver -- The occupant of a motor vehicle who is in actual physical control of the vehicle in transit or, for an out-of-control vehicle, the occupant who was in control before control was lost.

Economic Loss -- An approximation of the costs associated with crashes, based upon current National Safety Council estimates of the loss to society for each fatality, injury, and property damage crash.

Fatal Crash -- A motor vehicle crash on a public traffic-way in which at least one person dies unintentionally as a result of the crash. The death must occur within 30 days of the crash.

First Harmful Event -- The first event during a crash that caused injury or property damage.

Injury Severity

Fatal Injury -- An injury that results in an unintentional death within 30 days of the crash.

Severe or Incapacitating Injury -- An injury (other than fatal) that prevents the injured person from walking, driving or normally continuing the activities he or she was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull fracture, crushed chest, internal injuries, unconsciousness, etc. Hospitalization is usually required.

Moderate/Non-Incapacitating injury -- An injury (other than fatal or severe) that is evident to the officer at the scene of the crash. Includes abrasions, minor lacerations, bleeding, etc. May require medical treatment, but hospitalization is usually not required.

Minor or Possible Injury -- An injury (other than fatal, severe, or moderate) that is reported by a person involved in the crash. Includes complaint of physical pain when no cause is evident, momentary unconsciousness, limping, nausea, hysteria, etc.

Motorcycle -- A two-wheeled or three-wheeled motor vehicle having one or more riding saddles and having an engine of more than 50 cc. If it has a 50 cc or smaller engine, it is classified as a motorized bicycle or motorscooter/motorbike.

Motorcycle Crash -- A motor vehicle crash involving one or more motorcycles.

Motor Vehicle -- A self-propelled vehicle, including attached trailers and semitrailers designed for use with such vehicles.

Motor Vehicle Crash -- A crash that involves a motor vehicle in transport on a public trafficway in Minnesota and results in injury, death, or at least $500.00 in property damage.

Occupant -- Any person who is in or on a vehicle, including the driver, passenger, and persons riding on the outside of the vehicle.

Occupant Restraints -- Protective devices used in motor vehicles to keep the driver and passengers in their seats and prevent them from being ejected from the motor vehicle in a crash. Restraint devices include lap belts, lap/shoulder harness combinations, air bags, and child safety seats.

Passenger -- Any occupant of a motor vehicle other than the driver.

Pedestrian -- Any person not in or on a motor vehicle or other vehicle (e.g., a bicycle).

Pedestrian Crash -- A motor vehicle crash involving one or more pedestrians.

Restraint Usage -- An occupant's use of available vehicle restraints including lap belt, lap/shoulder combination harness, or child safety seats.

Rural -- Having a population of under 5,000.

School Bus Crash -- A crash involving one or more school buses.

Trafficway -- Any land way open to the public as a matter of right or custom for moving persons or property from one place to another.

Train/Motor Vehicle Crash -- A motor vehicle crash involving a motor vehicle in transport and a railway train. Presently, the only crashes classified as train crashes are those in which the first harmful event is collision with a train.

Truck Crash -- A motor vehicle crash involving one or more vehicles of the following types: (1) 2-axle, 6-tire single unit truck or stepvan, (2) 3-or-more-axle single unit truck, (3) single-unit truck with trailer, (4) truck tractor with no trailer, (5) truck tractor with semi-trailer, (6) truck tractor with double trailers, (7) truck tractor with triple trailers, (8) heavy truck of other or unknown type. Pickup trucks and vans are not counted as trucks.

Urban -- Having a population of 5,000 or more.

INTRODUCTION

At the end of the 1993 calendar year, 3,223,153 people held Minnesota driver licenses and 3,480,507 motor vehicles were registered in the state. Vehicles traveled over 42 billion miles on public roadways in the state. There were 100,907 traffic crashes; 538 people died and 44,987 people were injured in those crashes. This report provides a statistical summary of those crashes.

The purpose of *Crash Facts* is to provide summary statistical information about the crashes reported to the state each year. The term "crash" is used in preference to "accident." The latter term suggests there is a random, unavoidable quality about the events in question. In fact, though, the experience of the last two decades potently demonstrates that advances in engineering and technology, coupled with changes in public policy and individual human behavior, can dramatically reduce the number and severity of traffic crashes.

Cost of Traffic Crashes

The necessity of getting from one place to another and the efficiency of motor vehicles for this purpose result in significant costs to society. The National Safety Council reports that accidents (from all causes) are the leading cause of death among persons aged 1 to 38 and the fourth leading cause of death among all persons (*Accident Facts, 1993 Edition,* p. 6).

It is possible to estimate economic costs of traffic crashes, although the results can vary depending on definitions and estimating procedures. Many states use the National Safety Council's economic cost figures, the most recent of which are based on 1992 data. Based on those, the total economic loss from 1993 traffic crashes in Minnesota was $1,397,785,500, a figure which is calculated as follows:

Cost of Motor Vehicle Crashes in 1992

538	deaths	@$880,000	=$473,440,000
4,139	severe injuries	@ $32,600	=$134,931,400
14,902	moderate injuries	@ $10,700	=$159,451,400
25,946	minor injuries	@ $6,700	=$173,838,200
70,173	property damage crashes	@ $6,500	=$456,124,500
		Total =	$1,397,785,500

Factors Affecting Traffic Crashes

Many factors may contribute to even a single crash. A domestic quarrel may lead to driver distraction, which together with wet, slippery pavement and high traffic congestion at an intersection causes a traffic crash. Public policy cannot address the infinite number of individual causes imaginable.

There is a more limited number of factors that significantly affect the aggregate of traffic crashes. These can be organized into logical groups, such as human behavior factors or vehicle safety factors. The following paragraphs outline some of the factors most frequently thought to affect crash incidence and severity.

Vehicle Safety Factors: Engineering and design standards for vehicle performance can help prevent crashes from occurring. When there is a crash, vehicles designed for safety can increase survivability. For example, the design of windshield glass and the location and durability of gas tanks can increase safety. The "passenger packaging" inside a vehicle can reduce injury severity through means such as padded dashboards and collapsible steering wheel columns. Passenger protection systems in vehicles (airbags, safety belts, etc.), if used, can eliminate injuries or reduce their severity.

Behavior factors: For all crashes, the driver behaviors police cite most often as contributing factors are, in order of frequency, driver inattention or distraction, failure to yield right of way, and illegal or unsafe speed. In fatal crashes, illegal or unsafe speed is cited most often, followed by physical impairment (usually by alcohol). Reducing these behaviors would reduce crashes. When there is a crash, using safety equipment will reduce severity. Motorcyclists and bicyclists should wear helmets. Vehicle occupants should use safety belts. Infants and toddlers should always be placed in child safety seats.

Roadway characteristics: Limited access highways carry about a fifth of the traffic volume in Minnesota, yet account for only about a twelfth of fatal accidents. They are built to high roadway engineering standards and are very safe, relatively speaking. In general, roadway characteristics conducive to safety include wide lanes, clearly visible striping, flared guardrails, wide shoulders of good quality, shoulders and roadsides free of obstacles, well-located crash attenuation devices, well-planned use of traffic signals, and effective communication to roadway users through clear and visible signing.

Environmental factors: Weather conditions affect crash incidence and severity. Clear dry roads are conducive to high speeds; consequently, fatal crashes have a pronounced seasonal variation, peaking in the warm summer months and falling in the winter months. The total number of crashes is driven by the incidence of the less serious property damage crashes, which tend to have a reverse seasonal variation, peaking in the winter months.

Volume of traffic, or vehicle miles traveled (VMT), is a predictor of crash incidence. All other things being equal, as VMT increases, so will traffic crashes. The relationship may not be simple, however; after a point, increasing congestion leads to reduced speeds, changing the proportion of crashes that occur at different severity levels.

The quality and availability of emergency medical services might be classified as an environmental factor. The first hour after a traumatic episode, such as a traffic crash, has been called the "golden hour." Victims who receive emergency services within that time have markedly improved chances of survival.

The age structure of the population has a strong effect on crash incidence, although it is not generally thought about since demographic changes are so gradual. In Minnesota, about one in eight teenaged drivers are involved in crashes each year. The involvement rate drops off for successive age groups. For example, it is about 1 in 25 for drivers in their forties. The aging of the baby boom has reduced crash incidence.

Historical Perspective

In 1966, there were 53,041 traffic fatalities in the country, or 5.7 for every hundred million miles of travel. In Minnesota in 1968, there were 1,060 traffic fatalities, or 5.3 per hundred million miles of travel. Those were the worst years. Since then, both the rate and the number of fatalities have declined in a fairly steady pattern. Last year, there were 39,850 traffic fatalities throughout the country and 538 in Minnesota. The respective rates per hundred million miles of travel were 1.7 and 1.27. A dramatic benefit has been achieved.

The benefit is in large part the result of conscious decision-making on traffic safety issues. The National Highway Traffic Safety Administration (originally called the National Safety Bureau) was established in the U.S. Department of Transportation in 1967. Since then it has promoted, and Congress has passed, legislation mandating the manufacture of safer cars. At the same time, the federal interstate highway system has expanded, contributing to a safer roadway environment.

Simultaneously there has been an effort to change human behavior factors. Minnesota has been a leader among the states in the development of innovative drunk driving countermeasures. The Legislature made significant amendments to the DWI law in 1971, 1976, 1978, and in almost every year of the 1980s. It also passed the child passenger protection law in 1981, and the mandatory seat belt law in 1986. It subsequently amended those

laws, closing loopholes, broadening their scope, and strengthening penaltics.

The benefits of action in these areas are clear. The graph shown in Figure 1 is one illustration. It shows a steady increase in the number of drivers and vehicles, but a steady decrease in the fatality rate per hundred million miles of travel.

Legislative requirement

Minnesota Motor Vehicle Crash Facts is produced annually by the Office of Traffic Safety, Minnesota Department of Public Safety, in accordance with state law. Minnesota Statutes, Section 169.09, requires that traffic crashes be reported to the Department. Section 169.10 then requires the Department to ". . . tabulate . . . all accident reports . . . and publish annually . . . statistical information based thereon as to the number and circumstances of traffic accidents."

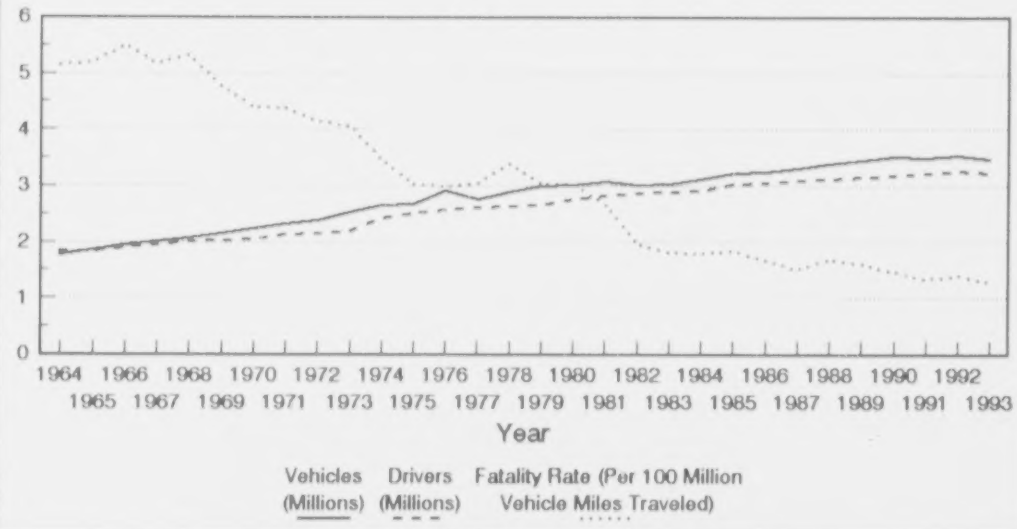
Section 169.09 specifies that a driver involved in an accident that results in injury to or death of any person or total property damage of $500 or more must submit a report within ten days of the crash. The law enforcement officer who investigates the crash must also submit a report within ten days.

The minimum dollar amount for crashes involving only property damage has changed over the years. The first minimum was set at $50 in 1939. It was raised to $100 in 1965, to $300 in 1976, and then to the current minimum of $500 in 1981.

Crash Facts is divided into nine sections. The first presents information on the aggregate of all crashes reported to the state during the preceding calendar year. The remaining eight sections focus on specific areas of interest to policy makers and the public. Section II deals with alcohol-related crashes. Section III is about the use of safety equipment by occupants of vehicles required to be equipped with passenger protection systems, including child safety seats and safety belts. The following five sections focus on crashes that involved motorcycles (section IV), trucks (section V), pedestrians (section VI), bicycles (section VII), and school buses (section VIII). The final section (IX) summarizes information on collisions between motor vehicles and trains.

FIGURE 1

Vehicles, Drivers, and Fatality Rate, 1964–1993



I: ALL CRASHES

1993 CRASHES

Vehicle miles traveled in the state in 1993 increased by an average amount (2.4%, to 42.3 billion miles) over the prior year. Total traffic crashes increased over 4%, to 100,907, from 1992, but were down slightly from the prior five-year average. There was a continuation last year of the desirable trend that has been in evidence for the past decade: Despite the increase in miles traveled in the state, the more serious crashes and fatalities are declining while the less serious crashes and injuries fluctuate unevenly around a stable average. There were 538 fatalities last year, down 7% from both the prior year and the prior five-year average. There were 1.27 deaths per 100 million miles of travel--the lowest rate in the state's history, and one of the lowest rates among the 50 states. There were 4,139 severe injuries, down 6% from 1992 and down 15% from the prior five-year average. Meanwhile, minor injuries increased 7% from both the prior year and the prior five-year average. The following sections give an overview of 1993 crash facts, focusing on *who* was involved, *what* the conditions were, and on *where* and *when* they occurred.

WHO was involved

Teen-aged drivers and males over-represented

Young, inexperienced drivers are by far the most crash-involved. For the whole population, about 1 in 19 licensed drivers was in a crash in 1993, but among teenagers the figure was about 1 in 8. That ratio declines steadily across successive age groups, up to about age 70; then it levels off. In the 65 to 69 age group, 1 licensed driver in 37 was involved in a crash. Teenagers are also over-involved in fatal crashes. One out of every 2,190 teenage drivers was in a fatal crash, compared to 1 out of every 7,245 40- to 44-year-old drivers. Males are usually the drivers in crashes in and total crashes: 76% of the drivers in fatal crashes and 60% of the drivers in all crashes were males.

Crash victims also young

The age structure among crash victims is similar to that of the drivers. The 15- to 19-year-old age group suffered the most injuries: 7,429, or 17%, of the 44,987 people injured. This age group accounted for 62 (12%) of the 538 fatalities. There were 63 deaths among 20- to 24-year-olds. The number injured declines steadily across successive age groups. Males and females were injured in about equal number, but almost twice as many males as females were killed in traffic crashes.

Contributing factors vary with age

In single-vehicle crashes, illegal or unsafe speed is the most frequently cited contributing factor for drivers up to about age 35, representing 19% or more of the factors cited. For drivers about 35 and older, driver inattention or distraction was the most often cited factor. In multiple-vehicle crashes, driver inattention or distraction was reported most often (about a fourth of all factors cited) for drivers through about age 64. Failure to yield right of way was reported most often (about a third of the factors cited) for drivers 65 and older.

WHAT the conditions were

Crash type

Seventy percent of all crashes involved only property damage; 16% involved minor injury, 10% moderate injury, and 3% severe injury. Fewer than 1% were fatal. Collision with another motor vehicle was the most common first harmful event, accounting for over 67,000 (66%) of the total crashes and 299 (56%) of the people killed. Other serious crash types were collision with pedestrian, in which 44 people died; collision with fixed object (such as a tree), in which 77 people died; and non-collision overturns, in which 74 people died.

Speed, inattention, and not yielding are biggest factors

It is known that alcohol is a leading factor in fatal crashes, but it is often an antecedent factor -- coming prior to more immediate causal factors. In fatal crashes, illegal or unsafe speed was reported most often (17% of all factors reported), followed by failure to yield right of way (14%), then physical impairment -- almost always by alcohol -- (13%), and driver inattention or distraction (13%). In both injury and property damage crashes, the four factors reported most frequently were driver inattention or distraction (about 21%), failure to yield right of way (about 16%), illegal/unsafe speed (12%), and following too closely (7%).

Light and weather conditions
Most traffic occurs during daylight hours, and 51% of the fatal crashes and 62% of all crashes occurred during daylight. The remainder occurred in dawn, dusk or dark. Fully 32% of the fatal crashes occurred in the dark where there were no street lights. Road surfaces most often were dry -- for 70% of the fatal crashes and 58% of all crashes. They were covered with snow, slush, ice or packed snow in 14% of fatal crashes and 19% of all crashes.

Most deaths on two-lane, two-way roads
Freeways carry a disproportionate volume of traffic and are relatively safe. The great majority of traffic deaths (388, or 72%) occurred on two-lane, two-way roads, especially the trunk highways and "county state-aid" highways in rural parts of the state.

WHERE they happened

Rural fatal crashes, urban less severe crashes
Seventy-one percent of the fatal crashes occurred in rural areas where there is less congestion and people can drive fast. Sixty-nine percent of both injury and property damage crashes occurred in cities of 5,000 or more population, where there is more congestion and slower speeds.

Metro versus non-metro
The seven-county metro area accounted for 130 (24%) of the traffic deaths, and over 58,000 (58%) of the total crashes. Hennepin County alone had about one-half the fatalities and total crashes in the metro area. The 80-county non-metro area had 408 deaths and almost 43,000 of the total crashes.

Leading cities
After Minneapolis, with 26 deaths and 14,097 total crashes, and St. Paul, with 10 deaths and 8,969 total crashes, Bloomington had the third highest number of total crashes, with 2,486, and Eden Prairie had the third highest number of deaths, with 8.

WHEN they occurred

Afternoon rush hour has most fatal and total crashes
In the 1970s, fatal crashes were clearly highest between 1:00 and 2:00 AM, and total crashes had two peaks: a lesser one between 1:00 and 2:00 AM, and a higher one during the afternoon rush hour period between 5:00 and 6:00 PM. In the 1980s, total crashes shifted to a single peak pattern, with the peak coming in the afternoon rush hour period. Fatal crashes became more erratically distributed over the day, still usually peaking between 1:00 and 2:00 AM. Last year, 1993, fatal crashes were highest (at 38) between 4:00 and 5:00 PM. The hour from 1:00 to 2:00 AM was only ninth highest (with 24 fatal crashes.) The changing pattern is consistent with other evidence that impaired driving incidence is declining.

Day of week
Fatal crashes were most numerous on Fridays and second and third most numerous on Saturdays and Sundays, respectively. The top three days for total crashes were Fridays, then Wednesdays, then Thursdays.

Crashes show seasonal pattern
Fatal crashes and total crashes show contrasting seasonal patterns. Fatal crashes typically are highest in summer and lowest in winter. Good driving conditions in the summer months permit higher speeds. There is also a more varied traffic mix, and most of the motorcycle, pedestrian, and bicycle traffic deaths occur during the warmer months. In 1993, the most traffic deaths occurred in October (69), then July (62), then August and May (57 each). The fewest occurred in February (20), then January (26). Total crashes show a reverse pattern, tending to be highest in the inclement-weather months. In 1993, total crashes were highest in January, then December, then November, and lowest in April, then February, then May.

TABLE 1.01

CRASH, FATALITY, AND INJURY SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Traffic Crashes	93,741	99,168	95,460	94,095	102,094	105,996	99,236	101,419	96,808	100,907
Persons Killed	584	610	572	530	615	605	568	531	581	538
Persons Injured	41,808	44,316	42,130	42,091	44,415	45,404	44,634	42,748	43,249	44,987
Registered Motor Vehicles (Millions of Vehicles)	3.13	3.22	3.25	3.31	3.39	3.46	3.52	3.51	3.55	3.48
Licensed Drivers* (Millions of Drivers)	2.91	3.04	3.07	3.10	3.13	3.16	3.18	3.22	3.27	3.22
Vehicular Miles Traveled (Billions of Miles)	32.2	33.1	34.2	35.1	36.4	37.6	38.8	39.3	41.3	42.3
Fatality Rate Per Hundred Million Vehicle Miles Traveled	1.81	1.84	1.67	1.51	1.69	1.61	1.47	1.35	1.41	1.27
Fatality Rate Per 100,000 Registered Motor Vehicles	18.7	18.9	17.6	16.0	18.1	17.5	16.1	15.1	16.4	15.5
Fatality Rate Per 100,000 Population	14.1	14.7	13.6	12.6	14.3	13.9	13.0	12.0	13.0	11.9
Crash Rate Per Hundred Million Vehicle Miles Traveled	291	300	279	268	280	282	256	258	235	239
Crash Rate Per 100,000 Registered Vehicles	2,995	3,080	2,937	2,840	3,012	3,060	2,817	2,890	2,730	2,899
Crash Rate Per 100,000 Population	2,262	2,380	2,266	2,233	2,371	2,435	2,268	2,288	2,161	2,234

* Permits included.

TABLE I.02

TRAFFIC CRASH TRENDS
1988 - 1993

	1988	1989	1990	1991	1992	*1988-1992 Average*	1993	% Change from 5 Yr Average	Record	High
Total Crashes	**102,094**	**105,996**	**99,236**	**101,419**	**96,808**	**101,110.6**	**100,907**	**-0.2%**	**123,106**	**(1975)**
Fatal Crashes	**545**	**539**	**503**	**469**	**494**	**510.0**	**477**	**-6.5**	**878**	**(1973)**
Injury Crashes	**30,743**	**31,576**	**30,684**	**28,890**	**29,117**	**30,202.0**	**30,257**	**+0.2**	**33,686**	**(1978)**
Severe	4,386	4,111	4,016	3,356	3,387	3,851.2	3,206	-16.8	5,109	(1984)[1]
Moderate	11,066	11,057	10,641	10,421	10,204	10,677.8	10,503	-1.6	12,326	(1985)[1]
Minor	15,291	16,408	16,027	15,113	15,526	15,673.0	16,548	+5.6	16,548	(1993)[1]
Property Damage Crashes	**70,806**	**73,881**	**68,049**	**72,060**	**67,197**	**70,398.6**	**70,173**	**-0.3**	**94,810**	**(1975)**
Total Injuries	**44,415**	**45,404**	**44,634**	**42,748**	**43,249**	**44,090.0**	**44,987**	**+2.0**	**50,332**	**(1978)**
Severe	5,501	5,148	5,015	4,302	4,391	4,871.4	4,139	-15.0	6,573	(1984)[1]
Moderate	15,593	15,431	15,001	14,725	14,554	15,060.8	14,902	-1.1	17,670	(1985)[1]
Minor	23,321	24,825	24,618	23,721	24,304	24,157.8	25,946	+7.4	25,946	(1993)[1]
Total Fatalities	**615**	**605**	**568**	**531**	**581**	**580.0**	**538**	**-7.2**	**1,060**	**(1968)**
Pedestrian	69	67	65	61	46	61.6	47	-23.7	157	(1971)
Motor Vehicle/Train[2]	12	15	17	10	9	12.6	15	+19.0	62	(1932)
Bicycle	16	10	8	8	11	10.6	9	-15.1	24	(1977)
Motorcycle	58	37	50	40	28	42.6	34	-20.2	121	(1980)
All Terrain Vehicle	1	5	2	6	1	3.0	1	-66.7	9	(1986)
Snowmobile	4	3	1	2	4	2.8	4	+42.9	9	(1984)
Motor Vehicle Occupants	459	478	431	405	484	451.4	439	-2.7	484	(1992)[1]
Fatality Rate[3]	1.69	1.61	1.47	1.35	1.41	1.51	1.27	-15.7	23.6	(1934)
U.S. Fatality Rate[3]	2.3	2.2	2.1	1.9	1.8	2.1	1.7	-17.5	18.0	(1925)
Minnesota Economic Loss (millions)	$579.9	$619.0	$717.9	$834.1	$965.8	$743.34	1,397.79	+88.0	$1,397.79	(1993)[4]

[1] The available records on which these "record highs" are based only go back to 1984.

[2] Fatalities occurring in motor vehicle/train crashes are included in other categories as well.

[3] Rate is based upon per 100 million vehicle miles of travel.

[4] The record economic loss is a function mainly of inflation rather than trends in traffic safety.

TABLE 1.03

1993 FATALITIES BY TRAFFIC ROLE, GENDER, AND AGE

Type of Vehicle	Position in Vehicle	Gender	Age 0-9	10-19	20-29	30-39	40-49	50-59	60-69	70 & Older	Total*
Car or Truck	Driver	Male	0	24	45	55	17	22	18	41	222
		Female	0	13	17	18	12	12	10	15	97
	Passenger	Male	8	13	15	4	0	2	1	5	48
		Female	7	13	7	6	5	3	5	15	62
	Unknown	Male	0	3	2	0	0	0	0	0	5
		Female	1	0	1	0	0	0	0	1	3
Motorcycle	Operator	Male	0	1	9	11	3	4	0	0	28
		Female	0	0	0	1	0	0	0	0	1
	Passenger	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	3	2	0	0	0	0	5
Motorscooter or Moped	Driver	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0	0	0
	Passenger	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0	0	0
All Terrain Vehicle	Driver	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0	0	0
	Passenger	Male	0	1	0	0	0	0	0	0	1
		Female	0	0	0	0	0	0	0	0	0
Snowmobile	Driver	Male	0	0	1	2	0	0	0	0	3
		Female	0	1	0	0	0	0	0	0	1
	Passenger	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0	0	0
Other Motor Vehicle**	Driver	Male	0	0	0	2	0	0	0	1	3
		Female	0	0	0	0	0	0	0	0	0
	Passenger	Male	0	0	1	0	0	0	0	0	1
		Female	0	1	0	0	0	0	0	0	1
	Unknown	Male	0	0	0	0	1	0	0	0	1
		Female	0	0	0	0	0	0	0	0	0
Bicyclist		Male	0	3	2	0	0	0	0	0	5
		Female	1	2	0	1	0	0	0	0	4
Pedestrian		Male	0	1	7	6	6	1	2	9	32
		Female	4	1	1	1	1	1	1	5	15
Total Fatalities		Male	8	46	82	80	27	29	21	56	349
		Female	13	31	29	29	18	16	16	36	189
		Total	21	77	111	109	45	45	37	92	538

* Included in the total column (but not in any other column) is one female car passenger whose age was unknown.

** "Other motor vehicle" includes "farm tractor or equipment" (2 fatalities), "motorhome/camper" (1 fatality), "military vehicle" (1 fatality), "other privately owned vehicle" (2 fatalities).

TABLE 1.04

AGE AND GENDER OF PERSONS KILLED OR INJURED IN 1993 CRASHES

	Persons Killed			Persons Injured		
Age Group	Male	Female	Total	Male	Female	Total*
0 - 4	4	10	14	410	401	815
5 - 9	4	3	7	783	657	1,441
10 - 14	8	7	15	1,003	954	1,967
15 - 19	38	24	62	3,584	3,833	7,429
20 - 24	47	16	63	3,241	3,050	6,295
25 - 29	35	13	48	2,428	2,403	4,836
30 - 34	44	12	56	2,210	2,210	4,430
35 - 39	36	17	53	1,801	1,877	3,682
40 - 44	12	13	25	1,452	1,572	3,027
45 - 49	15	5	20	1,000	1,187	2,192
50 - 54	21	10	31	728	869	1,601
55 - 59	8	6	14	569	660	1,230
60 - 64	7	9	16	448	576	1,026
65 - 69	14	7	21	422	482	905
70 - 74	10	11	21	392	473	869
75 - 79	20	10	30	286	395	683
80 - 84	17	9	26	192	245	439
85 & Older	9	6	15	131	142	274
Not Stated	0	1	1	654	936	1,846
Total	349	189	538	21,734	22,922	44,987

* Many totals do not add across because gender is not always indicated on the accident report.

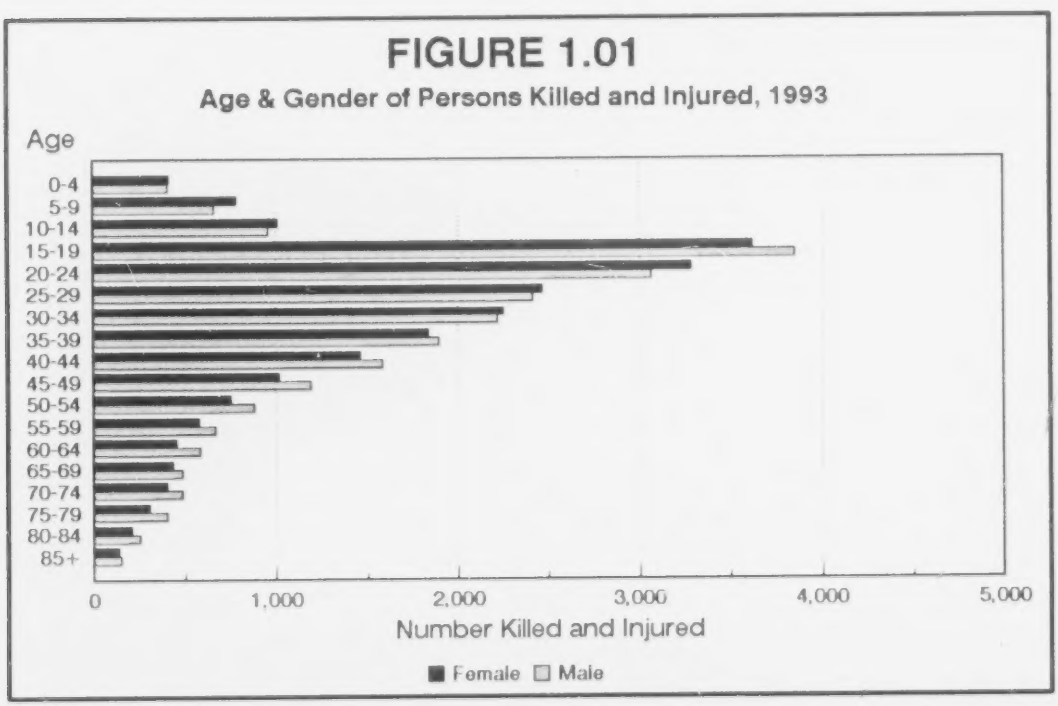


TABLE 1.05

DRIVERS IN 1993 CRASHES BY PHYSICAL CONDITION*

Physical Condition	Drivers in Fatal Crashes	Drivers in Injury Crashes	Drivers in Property Damages Crashes	Drivers in All Crashes
Normal	401	43,070	77,526	120,997
Under the Influence	76	2,059	1,718	3,853
Had Been Drinking	53	1,365	1,291	2,709
Had Been Using Drugs	2	44	24	70
Asleep	6	326	298	630
Fatigued	3	116	150	269
Ill	5	124	71	200
Other	16	180	189	385
Unknown	199	7,016	37,327	44,542
Total	761	54,300	118,594	173,655

* As noted by police officer on accident report. Pedestrians and bicyclists are not included.

TABLE 1.06

DRIVERS IN 1993 CRASHES BY AGE AND FIRST HARMFUL EVENT IN CRASH

First Harmful Event	Drivers 15-19	Drivers 20-24	Drivers 25-29	Drivers 30-34	Drivers 35-64	Drivers 65-79	Drivers 80 & Older
Collision With:							
Other Motor Vehicle	76.9%	78.9%	80.9%	80.5	81.8%	85.4%	85.2%
Parked Motor Vehicle	3.5	2.7	2.4	2.6	2.3	3.2	5.1
Railroad Train	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Bicycle	0.4	0.6	0.6	0.6	0.7	0.8	1.1
Pedestrian	0.8	0.7	0.8	0.7	0.7	0.8	0.8
Deer	2.4	2.9	3.8	4.6	5.2	3.2	1.2
Other Animal	0.3	0.3	0.3	0.3	0.4	0.2	0.1
Fixed Object	8.9	8.0	6.2	5.9	4.6	3.7	4.3
Falling Object	0.1	0.2	0.2	0.3	0.2	0.2	0.1
Non-Collision:							
Overturn	5.5	4.2	3.2	3.2	2.5	1.2	1.2
Other Non-Collision	0.2	0.2	0.2	0.1	0.2	0.2	0.2
Other or Unknown	1.1	1.3	1.3	1.1	1.3	1.0	0.7
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Drivers	23,973	24,053	21,028	20,603	60,186	10,126	2,528

Percentages are based on the number of crash-involved drivers in each age group. They may not sum to 100 due to rounding. Bicyclists and pedestrians are not included.

TABLE 1.07

AGE AND GENDER OF DRIVERS IN 1993 CRASHES*

	Drivers in Fatal Crashes				Drivers in All Crashes			
Age Group	Male	Female	Not Stated	Total	Male	Female	Not Stated	Total
14 & Younger	2	2	0	4	134	65	1	200
15 - 19	61	24	0	85	14,166	9,760	47	23,973
20 - 24	82	18	0	100	14,307	9,680	66	24,053
25 - 29	57	21	0	78	12,591	8,365	72	21,028
30 - 34	84	22	0	106	12,447	8,085	71	20,603
35 - 39	64	18	0	82	10,341	7,061	60	17,462
40 - 44	45	13	0	58	8,469	5,790	31	14,290
45 - 49	31	7	0	38	6,379	4,175	29	10,583
50 - 54	32	10	0	42	4,658	2,899	27	7,584
55 - 59	22	9	0	31	3,686	1,922	12	5,620
60 - 64	19	7	0	26	2,926	1,711	10	4,647
65 - 69	19	7	0	26	2,578	1,412	9	3,999
70 - 74	16	11	0	27	2,183	1,328	17	3,528
75 - 79	19	5	0	24	1,528	1,058	13	2,599
80 - 84	15	5	0	20	967	654	2	1,623
85 & Older	7	4	0	11	588	300	17	905
Not Stated	1	1	1	3	3,917	2,273	4,768	10,958
Total*	576	184	1	761	101,865	66,538	5,252	173,665

* Most crashes involve more than one driver, causing the total number of drivers to exceed the total number of crashes. (Pedestrians and bicyclists are not shown in this table.)

TABLE 1.08

LICENSED VS. CRASH-INVOLVED DRIVERS BY AGE, 1993

Age Group	Percentage of All Licensed Drivers	Percentage of Drivers in Fatal Crashes	Injury Crashes	Property Damage Crashes	All Crashes
14 & Younger	0.0%	0.5%	0.2%	0.1	0.1
15 - 19	5.8	11.2	14.7	13.4	13.8
20 - 24	9.0	13.1	14.8	13.4	13.9
25 - 29	10.3	10.2	12.6	11.9	12.1
30 - 34	12.4	13.9	12.2	11.7	11.9
35 - 39	11.9	10.8	10.3	9.9	10.1
40 - 44	10.6	7.6	8.4	8.2	8.2
45 - 49	8.6	5.0	6.2	6.0	6.1
50 - 54	6.7	5.5	4.3	4.4	4.4
55 - 59	5.4	4.1	3.2	3.3	3.2
60 - 64	4.8	3.4	2.6	2.7	2.7
65 - 69	4.6	3.4	2.3	2.3	2.3
70 - 74	4.0	3.5	2.0	2.0	2.0
75 - 79	3.1	3.2	1.6	1.5	1.5
80 - 84	1.9	2.6	0.9	0.9	0.9
85 & Older	1.0	1.4	0.5	0.5	0.5
Not Stated	0.0	0.4	3.1	7.8	6.3
Total Percent*	100.0	100.0	100.0	100.0	100.0
Total Number**	3,223,153	761	54,300	118,594	173,655

* Percents may not sum to 100 due to rounding.
** Includes drivers with instruction permits.

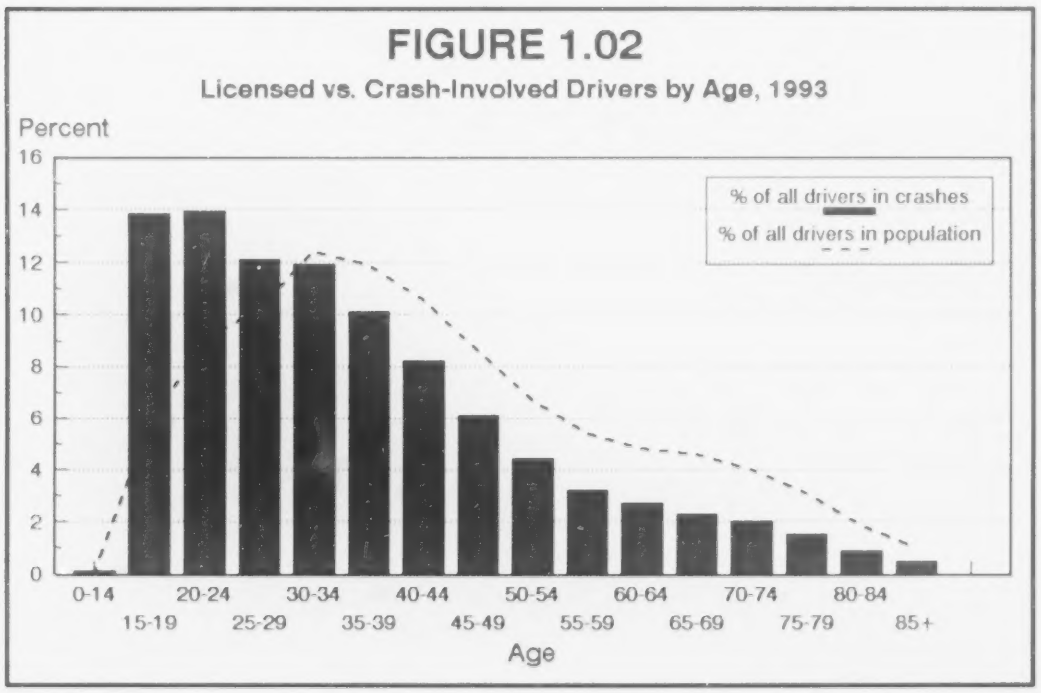


TABLE 1.09

SINGLE-VEHICLE CRASHES:
CONTRIBUTING FACTORS, BY PERCENT, WITHIN DRIVER AGE GROUPS, 1993

Contributing Factors	Drivers 15-19	Drivers 20-24	Drivers 25-29	Drivers 30-34	Drivers 35-64	Drivers 65-79	Drivers 80 & Older
Human Factors							
Illegal/Unsafe Speed	23.4%	23.3%	21.9%	19.1%	16.2%	9.7%	5.8%
Driver Inattention/Distraction	16.2	15.6	15.2	15.8	16.8	24.7	22.8
Physical Impairment	5.2	13.2	13.2	13.7	10.7	9.0	8.1
Driver Inexperience	18.1	3.9	2.8	1.8	1.6	0.7	0.5
Improper/Unsafe Lane Use	3.0	4.1	5.1	4.7	3.9	5.3	8.1
Failure to Yield Right of Way	2.1	2.8	3.3	3.7	4.2	6.8	8.7
Unsafe Backing	1.6	1.5	1.1	1.5	2.1	4.0	5.2
Vision Obscured	1.3	1.3	1.8	2.0	2.2	2.6	2.9
Driving Left of Center--Not Passing	1.4	1.8	1.6	1.6	1.1	1.6	1.3
Improper Turn	1.1	1.3	1.2	1.0	1.5	2.4	2.4
Improper Parking/Starting/Stopping	0.6	0.6	0.7	1.1	0.9	2.0	3.4
Disregard for Traffic Control Device	0.8	1.1	1.2	1.0	0.9	0.8	1.3
Improper Passing/Overtaking	0.8	0.7	0.7	0.6	0.6	1.1	1.0
Following Too Closely	0.5	0.7	0.8	0.9	0.7	0.5	0.3
Failure to Use Lights	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Other Human Factors	2.1	2.6	2.3	2.8	2.6	4.5	7.1
Vehicular Factors							
Skidding	8.3	8.4	8.7	7.6	10.0	5.8	5.0
Defective Equipment	1.2	1.6	1.3	2.0	1.5	1.0	1.3
Other Vehicular Factor	0.9	1.2	1.5	1.4	2.1	2.2	2.1
Miscellaneous Factors							
Weather	7.8	10.2	10.8	12.3	14.7	10.2	7.9
Other	3.4	4.1	4.7	5.4	5.8	5.2	4.7
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Contributing Factors Cited	6,735	5,446	3,686	3,347	7,812	1,106	381
Drivers for Whom There Was "No Clear Contributing Factor"	1,014	1,210	1,221	1,405	4,168	472	76
Total Number of Drivers	5,547	5,083	4,022	4,020	10,927	1,475	373

Percentages are based on all contributing factors cited within each age group. Zero, one, or two contributing factors may be associated with each driver. The percentages may not sum to 100 due to rounding. Contributing factors for bicyclists and pedestrians are excluded. Contributing factors with a frequency of less than one-tenth of one percent (for all age groups combined) are merged into the category "other human factors."

For contributing factors in multiple-vehicle crashes, see Table 1.10. For contributing factors in crashes at different levels of severity, see Table 1.20.

TABLE 1.10

MULTIPLE-VEHICLE CRASHES:
CONTRIBUTING FACTORS, BY PERCENT, WITHIN DRIVER AGE GROUPS, 1993

Contributing Factors	Drivers 15-19	Drivers 20-24	Drivers 25-29	Drivers 30-34	Drivers 35-64	Drivers 65-79	Drivers 80 & Older
Human Factors							
Driver Inattention or Distraction	22.5%	23.2%	23.5%	23.5%	23.0%	22.4%	22.4%
Failure to Yield Right of Way	19.8	18.1	17.7	17.8	21.3	32.1	38.6
Illegal or Unsafe Speed	10.4	11.4	10.5	10.1	7.6	3.9	3.0
Following Too Closely	9.5	10.4	10.7	10.0	8.7	4.6	2.8
Disregard of Traffic Control Device	4.1	4.9	5.0	4.8	4.7	6.6	5.9
Improper or Unsafe Lane Use	3.6	4.5	4.7	4.4	4.7	5.9	4.3
Vision Obscured	2.8	3.1	3.0	3.0	3.7	3.5	2.8
Improper Turn	2.5	2.6	2.4	2.6	3.2	5.0	5.4
Driver Inexperience	7.9	1.5	1.0	0.7	0.5	0.5	0.3
Improper Passing or Overtaking	1.8	2.1	2.1	2.0	1.6	1.1	1.4
Physical Impairment	0.5	1.8	2.6	3.1	2.2	1.3	1.8
Improper Parking, Starting, or Stopping	1.4	1.5	1.3	1.5	1.6	1.9	1.6
Driving Left of Center (Not Passing)	1.2	1.0	1.0	1.2	1.2	0.9	1.0
Unsafe Backing	0.9	1.1	1.3	1.6	1.7	1.5	1.4
Improper or No Signal	0.2	0.1	0.1	0.1	0.2	0.2	0.2
Impeding Traffic	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Failure to Use Lights	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Other Human Factors	0.9	1.1	1.3	1.4	1.5	1.7	1.9
Vehicular Factors							
Skidding	3.7	3.9	3.5	3.6	3.6	1.8	1.3
Defective Equipment	0.9	0.9	1.0	1.1	0.9	0.3	0.4
Other Vehicular Factor	0.4	0.3	0.4	0.4	0.3	0.2	0.2
Miscellaneous Factors							
Weather	4.0	4.6	5.0	5.2	5.5	3.1	1.8
Other	1.2	1.6	1.9	1.8	2.1	1.4	1.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Contributing Factors Cited	16,816	13,412	10,519	9,780	26,504	6,207	2,114
Drivers for Whom There Was "No Clear Contributing Factor"	6,014	7,945	7,714	7,742	24,568	3,346	551
Total Number of Drivers	18,426	18,970	17,006	16,583	49,259	8,651	2,155

Percentages are based on all contributing factors cited within each age group. Zero, one, or two contributing factors may be associated with each driver. The percentages may not sum to 100 due to rounding. Contributing factors for bicyclists and pedestrians are excluded. Contributing factors with a frequency of less than one-tenth of one percent (for all age groups combined) are merged into the category "other human factors."

For contributing factors in single-vehicle crashes, see Table 1.09. For contributing factors in crashes at different levels of severity, see Table 1.20.

TABLE I.11

PEOPLE KILLED OR INJURED IN VARIOUS VEHICLE TYPES, 1993

Vehicle Type	Killed	Injured			
		Severe	Moderate	Minor	Total
Automobile	333	2,677	10,167	19,391	32,235
Pickup Truck	73	440	1,764	2,691	4,895
Van	16	163	837	1,611	2,611
Motorhome/Camper	1	8	11	14	33
Taxicab	0	2	21	75	98
Police Vehicle	0	1	42	77	120
Fire Department Vehicle	0	3	11	5	19
School Bus	0	3	50	156	209
Other Bus	0	6	12	56	74
Ambulance	0	0	8	11	19
Military Vehicle	1	0	9	17	26
Snowmobile	4	25	24	23	72
All Terrain Vehicle	1	14	6	4	24
Farm Tractor or Equipment	2	6	12	14	32
Motorcycle*	34	297	587	267	1,151
Motorscooter/Motorbike*	0	8	15	6	29
Motorized Bicycle (Moped)*	0	5	14	5	24
Hit and Run Vehicle	0	3	45	72	120
Road Maintenance Vehicle	0	1	1	4	6
Single Truck (2-axle, 6-tire)	4	5	27	52	84
Single Truck (3 or more axles)	0	5	20	36	61
Single Truck with Trailer	1	2	9	14	25
Truck Tractor with No Trailer	1	0	3	9	12
Truck Tractor with Semi Trailer	8	21	60	109	190
Truck Tractor with Double Trailers	0	0	1	4	5
Other or Unknown Truck Type	1	0	5	6	11
Other or Unknown Motor Vehicle	2	13	52	107	172
Bicycle	9	141	618	481	1,240
Pedestrian	47	290	471	629	1,390
Total	538	4,139	14,902	25,946	44,987

* On the accident report form, police may show that a vehicle is a "motorcycle," a "motorscooter/motorbike," or a "moped or motorized bicycle." Since 1986, however, the law recognizes just two categories. If the vehicle has an engine capacity of more than 50 cc, it is classified as a motorcycle; if it has 50 cc or smaller engine capacity, it is classified as a motorized bicycle. The term moped is short for motorized pedalcycle, which is the same as motorized bicycle.

TABLE 1.12

DRIVER LICENSE* SUMMARY BY AGE, 1984 - 1993

Age	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
15	14,686	13,116	11,920	12,301	13,387	14,072	12,832	15,075	16,626	1,262
16	47,296	47,959	48,944	45,397	42,178	41,544	42,885	43,708	45,744	34,321
17	54,135	56,670	57,829	59,321	53,900	49,458	48,496	51,161	50,796	46,627
18	60,026	58,553	59,910	61,276	62,772	56,250	52,070	51,293	54,442	50,817
19	60,681	62,361	60,626	61,767	62,637	63,653	58,230	53,876	53,307	53,123
20	71,195	65,449	62,040	60,229	61,076	62,770	63,375	57,902	54,591	51,874
Under 21	308,019	304,108	301,269	300,291	295,950	287,747	277,888	273,015	275,506	238,024
15 - 19	236,824	238,659	239,229	240,062	234,874	224,977	214,513	215,113	220,915	186,150
20 - 24	376,051	370,613	352,170	336,289	326,738	319,048	316,504	312,463	307,139	291,484
25 - 29	384,544	405,120	402,984	399,409	396,744	386,440	372,178	357,464	345,255	332,385
30 - 34	350,728	370,634	374,138	380,972	385,508	393,168	398,645	402,273	404,717	398,672
35 - 39	295,902	322,827	329,018	335,262	344,613	355,869	364,385	371,856	383,109	385,053
40 - 44	231,740	241,313	257,213	269,275	280,236	298,889	316,265	324,986	335,328	341,726
45 - 49	185,534	195,594	202,083	213,358	221,666	229,993	234,494	252,944	266,872	275,678
50 - 54	168,248	170,984	171,833	174,453	179,129	184,310	189,266	197,122	210,453	215,834
55 - 59	167,629	169,847	168,037	165,791	164,032	163,520	164,023	165,779	169,769	172,630
60 - 64	157,311	161,519	161,268	161,733	161,449	160,260	159,799	158,552	157,248	155,289
65 - 69	133,503	139,155	141,584	143,841	144,830	147,857	148,161	148,934	149,867	148,447
70 - 74	103,525	112,352	115,619	118,338	120,753	121,638	122,965	126,115	128,653	128,347
75 - 79	69,288	77,369	80,947	85,032	86,901	89,355	92,378	96,235	98,605	98,688
80 - 84	35,359	42,850	46,817	50,812	51,922	52,667	55,000	58,863	60,829	60,088
85 & Older	14,619	20,482	23,305	27,326	27,634	27,179	29,915	34,455	35,198	32,682
Total	2,910,805	3,039,318	3,066,245	3,101,953	3,127,029	3,155,170	3,178,491	3,223,154	3,273,957	3,223,153

* Information provided by Department of Public Safety, Driver and Vehicle Service Division.
Counts of licensed drivers include drivers who only hold learner's permits.

TABLE 1.13

MOTOR VEHICLE REGISTRATIONS, 1984 - 1993

Type of Vehicle*	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Passenger Cars	2,258,877	2,339,782	2,395,247	2,450,232	2,518,604	2,583,982	2,642,022	2,638,572	2,670,885	2,615,602
Pickups	490,087	500,744	501,646	509,070	515,968	526,212	528,342	520,339	525,205	511,677
Trucks	119,667	118,990	124,323	127,888	135,918	137,690	140,874	139,263	141,144	144,367
Recreational Vehicles	32,451	33,133	32,026	33,120	34,226	34,805	35,328	35,515	36,290	36,826
Motorcycles	153,851	151,449	141,261	134,590	128,956	123,308	120,081	117,492	116,124	114,548
Motorized Bicycles	13,633	13,034	12,047	12,311	10,529	9,987	9,306	8,703	7,947	7,304
School Buses	3,998	4,185	4,598	5,095	5,115	5,026	5,037	5,109	5,058	5,052
Buses	3,604	3,575	3,405	3,502	3,879	4,217	3,780	3,822	3,804	4,039
Van Pool	137	180	209	229	253	248	259	264	256	319
Tax Exempt Vehicles	51,525	53,510	35,741	37,659	35,969	38,106	37,739	39,727	38,829	40,773
Motor Vehicle Subtotal	3,127,830	3,218,582	3,250,503	3,313,696	3,389,417	3,463,581	3,522,768	3,508,806	3,545,542	3,480,507
Trailers	615,004	602,795	663,559	653,630	726,054	708,693	780,484	754,942	830,527	807,187
Collector's Vehicles	39,981	45,269	50,702	56,146	61,280	66,860	72,031	76,947	82,116	87,405
Total Registrations	3,782,815	3,866,646	3,964,764	4,023,472	4,176,751	4,239,134	4,375,283	4,340,695	4,458,185	4,375,099

* Information provided by Department of Public Safety, Driver and Vehicle Services Division.

Minnesota license plates on a vehicle signify that it has been registered with the state and that the owner has paid the registration fee. The vehicle classification used for registration purposes is similar, but not identical, to the vehicle classification (shown in Tables 1.11 and 1.14) police use in reporting accidents. Following are some notes on the registration categories shown above:

Passenger cars include vans, except for "van pools." A van pool is a van used exclusively for car pooling purposes.

Pickup trucks are rated three-fourths ton or less.

Motorcycles have engines exceeding 50 cc; otherwise the vehicle is classified as a motorized bicycle.

Tax exempt vehicles are vehicles owned by city, county, or state offices. They have license plates but no registration fees are paid on them. (Police and fire department vehicles are tax exempt but are not included since they do not have state license plates and are not registered.)

Trailers (such as utility trailers pulled by cars, or semi or twin trailers pulled by trucks) are pulled by motorized vehicles and do not themselves have motors.

Collectors vehicles must be at least 20 years old and cannot be used for normal transportation purposes. They can only be driven, for example, to car shows.

TABLE I.14

TYPES OF MOTOR VEHICLES IN 1993 CRASHES

Motor Vehicle Type*	Vehicles in Fatal Crashes	Vehicles in Injury Crashes	Vehicles in Property Damage Crashes	Vehicles in All Crashes
Automobile	457	39,820	87,804	128,081
Pickup Truck	134	7,488	18,514	26,136
Van	43	3,371	7,907	11,321
Motorhome/Camper	3	40	121	164
Taxicab	1	136	283	420
Police Vehicle	0	175	377	552
Fire Department Vehicle	0	20	40	60
School Bus	3	219	687	909
Other Bus	2	120	290	412
Ambulance	1	17	43	61
Military Vehicle	1	33	83	117
Snowmobile	5	66	56	127
All Terrain Vehicle	1	20	19	40
Farm Tractor or Equipment	5	67	111	183
Motorcycle*	38	1,044	192	1,274
Motorscooter/Motorbike*	0	29	5	34
Motorized Bicycle (Moped)*	0	23	4	27
Hit and Run Vehicle	6	1,205	6,231	7,442
Road Maintenance Vehicle	2	58	230	290
Single Truck (2-axle, 6-tire)	7	326	847	1,180
Single Truck (3 or more axles)	11	152	282	445
Single Truck with Trailer	2	101	298	401
Truck Tractor with No Trailer	2	31	94	127
Truck Tractor with Semi Trailer	42	624	1,753	2,419
Truck Tractor with Double Trailers	0	15	32	47
Other or Unknown Truck Type	1	69	434	504
Other or Unknown Motor Vehicle	7	333	827	1,167
Total**	774	55,602	127,564	183,940

* On the accident report form, police may show that a vehicle is a "motorcycle," a "motorscooter/motorbike," or a "moped or motorized bicycle." Since 1986, however, the law recognizes just two categories. If the vehicle has an engine capacity of more than 50 cc, it is classified as a motorcycle; if it has 50 cc or smaller engine capacity, it is classified as a motorized bicycle. The term moped is short for motorized pedalcycle, which is the same as motorized bicycle.

** Most crashes involve more than one vehicle, causing total vehicles to exceed total crashes. Bicyclists and pedestrians are excluded from this table.

TABLE I.15

1993 CRASHES AND INJURIES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured	Fatality Rate Per 1,000 Crashes
Collision With:							
Another Motor Vehicle	248	20,462	46,359	67,069	299	32,650	4.5
Parked Motor Vehicle	5	605	5,631	6,241	7	787	1.1
Railroad Train	11	45	72	128	15	63	117.2
Bicycle	7	1,125	84	1,216	7	1,163	5.8
Pedestrian	43	1,309	17	1,369	44	1,386	32.1
Deer	1	287	6,234	6,522	1	352	0.2
Other Animal	3	118	412	533	3	156	5.6
Fixed Object	76	3,170	7,006	10,252	77	4,115	7.5
Falling Object	0	43	192	235	0	54	0.0
Non-Collision:							
Overturn	72	2,484	2,823	5,379	74	3,533	13.8
Fire/Explosion	1	9	190	200	1	12	5.0
Submersion	2	23	61	86	2	33	23.3
Other or Unknown	8	577	1,092	1,677	8	683	4.8
Total	477	30,257	70,173	100,907	538	44,987	5.3

TABLE I.16

1993 "HIT-AND-RUN" CRASHES AND INJURIES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	3	752	2,905	3,660	3	1,036
Parked Motor Vehicle	0	38	2,354	2,392	0	51
Railroad Train	0	0	2	2	0	0
Bicycle	0	115	26	141	0	119
Pedestrian	2	185	0	187	2	195
Deer	0	0	3	3	0	0
Other Animal	0	1	5	6	0	1
Fixed Object	1	56	702	759	1	70
Falling Object	0	2	14	16	0	2
Non-Collision:						
Overturn	0	8	44	52	0	11
Fire/Explosion	0	0	1	1	0	0
Other or Unknown	0	26	99	125	0	28
Total	6	1,183	6,155	7,344	6	1,513

TABLE I.17

1993 CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Not Applicable	323	15,861	35,276	51,460	352	23,265
Traffic Signal	25	6,815	12,910	19,750	25	10,314
Overhead Flashers	4	156	479	639	5	255
Stop Sign-All Approaches	1	538	1,203	1,742	1	760
Other Stop Sign	79	4,479	8,205	12,763	98	7,007
Yield Sign	11	583	1,210	1,804	12	914
Flagman, Officer, or School Patrol	0	42	122	164	0	55
School Bus Stop Arm	0	19	46	65	0	26
School Zone Sign	0	10	13	23	0	13
No Passing Zone	16	290	513	819	22	487
RR Crossing Gate	2	16	34	52	2	21
RR Flashing Lights	0	17	29	46	0	23
RR Crossing Stop Sign	3	7	18	28	5	7
RR Other	6	32	62	100	8	46
Other	4	390	2,096	2,490	5	524
Unknown	3	1,002	7,957	8,962	3	1,270
Total	477	30,257	70,173	100,907	538	44,987

TABLE I.18

1993 CRASHES BY WEATHER CONDITION

Weather Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Clear	238	14,891	32,990	48,119	268	22,017
Cloudy	136	8,954	19,363	28,453	154	13,408
Rain	32	2,883	6,129	9,044	39	4,433
Snow	30	1,672	5,325	7,027	33	2,486
Sleet/Hail	9	578	1,871	2,458	9	846
Fog/Smog/Smoke	11	352	704	1,067	12	507
Blowing Sand/Dust	9	364	918	1,291	10	556
Severe Crosswinds	1	42	108	151	1	58
Other	2	43	146	191	2	60
Not Stated/Unknown	9	478	2,619	3,106	10	616
Total	477	30,257	70,173	100,907	538	44,987

TABLE I.19

CONTRIBUTING FACTORS IN 1993 CRASHES

Contributing Factors	Crash Severity: Fatal Crashes	Crash Severity: Personal Injury Crashes	Crash Severity: Property Damage Crashes	Number of People Affected by the Factor: Killed	Number of People Affected by the Factor: Injured
Human Factors					
Driver Inattention/Distraction	12.6%	21.5%	20.4%	114	14,040
Failure to Yield Right of Way	13.6	16.7	15.7	128	11,870
Illegal/Unsafe Speed	17.1	12.1	11.6	139	8,392
Following Too Closely	0.8	6.9	6.7	7	4,371
Improper/Unsafe Lane Use	4.1	3.4	5.9	35	2,245
Disregard of Traffic Control Device	5.4	5.1	3.1	46	4,023
Physical Impairment	13.4	5.7	2.7	108	3,940
Driver Inexperience	2.0	3.4	3.0	18	2,460
Vision Obscured	1.1	2.6	2.8	11	1,473
Improper Turn	0.9	1.9	3.1	8	1,347
Improper Passing/Overtaking	1.4	1.1	1.9	15	766
Unsafe Backing	0.1	0.5	2.3	1	283
Improper Parking/Starting/Stopping	0.4	1.2	1.7	3	807
Driving Left of Center (Not Passing)	7.4	1.5	1.1	74	1,244
Pedestrian Violation or Error	3.2	1.9	0.0	25	819
Improper or No Signal	0.1	0.3	0.4	1	182
Impeding Traffic	0.3	0.3	0.2	1	190
Failure to Use Lights	0.3	0.2	0.1	2	144
Other Human Factor	1.1	1.4	1.0	10	884
Vehicular Factors					
Skidding	4.7	3.7	5.0	39	2,367
Defective Equipment	0.9	1.0	1.0	9	708
Other Vehicular Factor	0.0	0.5	0.7	0	322
Miscellaneous Factors					
Weather	5.6	4.7	6.7	37	2,647
Other	3.4	2.6	3.1	27	1,449
Total Percent	100.0%	100.0%	100.0%		
Total contributing factors cited	784	46,087	76,843		
Vehicles for Which There Was "No Clear Contributing Factor"	299	23,785	52,573		
Total Number of Vehicles	830	58,246	127,648		

Zero, one, or two contributing factors may be associated with each vehicle. This may cause the sum of the factors cited to differ from the number of vehicles and the sum of the people affected by the factors to exceed the number of people killed or injured during the year. Percentages are based on all factors cited; they may not sum to 100 due to rounding. Bicyclists and pedestrians are considered as vehicles in this table, and factors associated with them are included. For contributing factors by age of drivers, see tables 1.09 and 1.10. Contributing factors with a frequency of less than one-tenth of one percent are merged into the category "other human factors."

TABLE 1.20

1993 CRASHES BY LIGHT CONDITION

Light Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Daylight	241	19,857	42,335	62,433	282	29,522
Dawn/Dusk	27	1,937	5,327	7,291	30	2,758
Dark/Street Lights On	47	4,815	11,209	16,071	47	7,200
Dark/No Street Lights	154	3,178	8,293	11,625	171	4,878
Other/Unknown	8	470	3,009	3,487	8	629
Total	477	30,257	70,173	100,907	538	44,987

TABLE 1.21

1993 CRASHES BY ROAD SURFACE CONDITION

Road Surface Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Dry	334	19,243	38,993	58,570	380	28,732
Wet	64	5,523	11,460	17,047	72	8,388
Snow/Slush	18	1,330	3,963	5,311	18	1,989
Ice or Packed Snow	49	3,204	10,615	13,868	54	4,633
Other	10	427	786	1,223	12	617
Not Stated/Unknown	2	530	4,356	4,888	2	628
Total	477	30,257	70,173	100,907	538	44,987

TABLE 1.22

1993 CRASHES BY ROAD DESIGN

Road Design	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Freeway (Including Ramps)	33	2,728	7,209	9,970	36	3,867
Other Divided Highway	54	4,276	6,674	11,004	59	6,821
One-Way Street	5	949	1,412	2,366	5	1,391
4-6 Lanes Undivided	28	5,794	9,183	15,005	29	8,609
3 Lanes	8	293	511	812	8	474
2 Lanes--Two-Way	338	13,460	27,453	41,251	388	20,317
Alley/Driveway	1	202	540	743	1	221
Other	8	384	758	1,150	10	537
Not Stated/Unknown	2	2,171	16,433	18,606	2	2,750
Total	477	30,257	70,173	100,907	538	44,987

TABLE 1.23

1993 CRASHES BY TYPE OF ROADWAY

Type of Roadway	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Urban						
Interstate	18	1,702	4,958	6,678	18	2,360
Trunk Highway	50	5,901	12,118	18,069	55	8,883
County State Aid Highway	41	5,732	11,188	16,961	44	8,422
County Road	4	324	638	966	4	514
Local Street	24	7,242	19,790	27,056	24	10,026
Total	137	20,901	48,692	69,730	145	30,205
Rural						
Interstate	11	570	1,824	2,405	14	862
Trunk Highway	181	4,140	9,074	13,395	216	7,058
County State Aid Highway	107	2,766	5,524	8,397	118	4,178
County Road	14	474	793	1,281	14	700
Township Road	19	662	1,202	1,883	23	998
Local Street	6	609	2,458	3,073	6	817
Other Road	2	135	606	743	2	169
Total	340	9,356	21,481	31,177	393	14,782
All Roadways						
Interstate	29	2,272	6,782	9,083	32	3,222
Trunk Highway	231	10,041	21,192	31,464	271	15,941
County State Aid Highway	148	8,498	16,712	25,358	162	12,600
County Road	18	798	1,431	2,247	18	1,214
Township Road	19	662	1,202	1,883	23	998
Local Street	30	7,851	22,248	30,129	30	10,843
Other Road	2	135	606	743	2	169
Total	477	30,257	70,173	100,907	538	44,987

("Urban" refers to an area having a population of 5,000 or more; "rural" refers to an area of less than 5,000.)

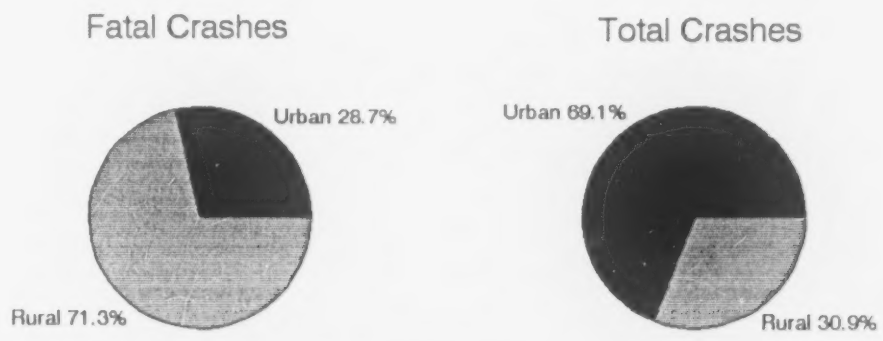
TABLE 1.24

1993 CRASHES BY POPULATION OF AREA

Population of City or Township	Personal Fatal Crashes	Property Injury Crashes	Damage Crashes	Total Crashes	Killed	Injured
100,000 & Over	36	6,640	16,026	22,702	36	9,376
50,000 - 99,999	16	3,079	6,599	9,694	16	4,467
25,000 - 49,999	32	4,637	10,472	15,141	35	6,669
10,000 - 24,999	33	4,710	10,868	15,611	35	6,987
5,000 - 9,999	20	1,835	4,727	6,582	23	2,706
2,500 - 4,999	10	890	2,229	3,129	11	1,381
1,000 - 2,499	15	645	1,573	2,233	16	1,022
Under 1,000	315	7,821	17,679	25,815	366	12,379
Total	477	30,257	70,173	100,907	538	44,987

FIGURE 1.03

Fatal vs Total Crashes, by Location, 1993



"Urban" refers to an area of 5,000 or more population.
"Rural" refers to an area of less than 5,000

TABLE I.25

1993 COUNTY CRASH REPORT

County	1993 Crashes: Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Average Crashes 1988-1992	Number Killed 1993	Average Killed 1988-1992	Number Injured 1993	Average Injured 1988-1992
Aitkin	2	90	174	266	254	2	5	131	124
Anoka	11	1,695	3,395	5,101	4,958	12	21	2,541	2,562
Becker	4	170	284	458	448	4	6	274	265
Beltrami	6	181	554	741	696	7	4	283	317
Benton	5	266	478	749	707	6	7	428	338
Big Stone	1	26	83	110	101	1	1	37	45
Blue Earth	14	421	1,076	1,511	1,530	15	7	624	559
Brown	2	155	318	475	479	2	3	214	210
Carlton	4	143	254	401	528	4	7	229	249
Carver	9	315	753	1,077	1,038	10	10	549	512
Cass	10	149	232	391	393	11	9	264	224
Chippewa	4	74	115	193	202	4	4	122	114
Chisago	3	201	474	678	683	3	7	304	318
Clay	3	321	817	1,141	1,076	3	8	513	434
Clearwater	2	33	66	101	118	2	1	53	66
Cook	0	31	122	153	177	0	1	49	68
Cottonwood	2	49	97	148	186	4	3	87	99
Crow Wing	12	355	738	1,105	1,084	15	10	563	546
Dakota	14	1,677	3,450	5,141	5,095	15	22	2,493	2,249
Dodge	3	81	197	281	254	6	5	136	116
Douglas	4	224	714	942	822	5	7	354	344
Faribault	4	61	178	243	220	5	3	89	109
Fillmore	5	110	271	386	354	5	5	171	174
Freeborn	5	243	593	841	703	7	6	352	283
Goodhue	14	341	904	1,259	1,027	15	10	499	461
Grant	1	29	95	125	90	1	1	48	38
Hennepin	59	8,644	19,667	28,370	29,523	60	67	12,308	12,286
Houston	4	89	241	334	320	4	4	119	138
Hubbard	3	97	145	245	271	3	2	176	165
Isanti	8	152	346	506	533	9	5	259	269

TABLE 1.25 CONTINUED

1993 COUNTY CRASH REPORT

County	1993 Crashes: Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Average Crashes 1988-1992	Number Killed 1993	Average Killed 1988-1992	Number Injured 1993	Average Injured 1988-1992
Itasca	10	244	472	726	688	11	11	388	377
Jackson	3	64	177	244	211	4	2	122	100
Kanabec	2	77	141	220	237	2	2	126	137
Kandiyohi	11	304	563	878	818	12	12	504	428
Kittson	1	19	61	81	84	1	1	25	39
Koochiching	4	60	172	236	292	4	3	101	152
Lac Qui Parle	1	34	60	95	96	1	3	47	50
Lake	2	59	189	250	236	4	3	92	97
Lake of The Woods	0	20	49	69	69	0	1	38	32
Le Sueur	9	117	403	529	507	12	5	190	197
Lincoln	3	24	73	100	108	3	2	29	51
Lyon	5	145	382	532	404	9	4	223	198
Mcleod	5	198	487	690	701	5	6	324	329
Mahnomen	3	43	44	90	59	4	2	80	52
Marshall	1	44	81	126	145	1	3	64	81
Martin	2	119	322	443	400	2	3	195	192
Meeker	4	100	229	333	376	5	5	152	153
Mille Lacs	3	141	264	408	367	3	6	247	239
Morrison	8	173	330	511	501	9	8	276	269
Mower	4	212	581	797	730	4	4	314	278
Murray	2	31	100	133	118	3	2	51	72
Nicollet	6	111	390	507	510	8	6	166	193
Nobles	3	110	342	455	373	3	2	157	151
Norman	2	42	77	121	94	3	1	71	57
Olmsted	7	693	1,753	2,453	2,535	9	10	1,000	1,049
Otter Tail	8	300	680	988	887	8	10	437	457
Pennington	3	87	173	263	268	4	1	122	138
Pine	4	162	302	468	453	4	7	274	240
Pipestone	1	48	127	176	168	1	3	64	79
Polk	3	166	352	521	536	3	8	234	257

TABLE 1.25 CONTINUED

1993 COUNTY CRASH REPORT

County	1993 Crashes: Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Average Crashes 1988-1992	Number Killed 1993	Average Killed 1988-1992	Number Injured 1993	Average Injured 1988-1992
Pope	2	58	118	178	139	2	1	89	63
Ramsey	16	3,932	10,060	14,008	14,893	16	27	5,609	5,436
Red Lake	2	13	49	64	63	2	1	23	26
Redwood	3	98	166	267	234	3	3	150	124
Renville	5	89	181	275	245	6	8	139	148
Rice	10	316	719	1,045	1,077	13	9	468	477
Rock	1	58	181	240	220	1	2	82	83
Roseau	3	56	172	231	233	5	3	103	94
St. Louis	19	1,068	2,308	3,395	3,641	21	26	1,589	1,644
Scott	4	427	1,008	1,439	1,316	4	13	654	610
Sherburne	5	261	566	832	769	5	8	424	421
Sibley	5	74	214	293	238	6	3	110	95
Stearns	12	925	2,094	3,031	2,931	13	16	1,339	1,346
Steele	3	194	858	782	739	3	5	301	273
Stevens	1	36	87	124	145	1	2	52	58
Swift	2	43	88	133	120	2	2	77	61
Todd	2	117	335	454	391	3	6	204	218
Traverse	1	13	31	45	44	1	1	16	20
Wabasha	1	112	268	381	382	1	5	168	168
Wadena	2	73	187	262	274	2	1	102	137
Waseca	2	74	238	314	345	4	3	112	132
Washington	11	885	2,130	3,026	2,771	13	16	1,339	1,187
Watonwan	2	53	154	209	180	2	2	81	85
Wilkin	2	69	154	225	160	2	2	114	90
Winona	6	344	854	1,204	1,180	6	7	472	467
Wright	15	420	875	1,310	1,254	17	18	668	671
Yellow Medicine	2	59	102	163	127	2	2	93	66
Unknown	0	20	42	62	158	0	0	27	64
Total	477	30,257	70,173	100,907	101,111	538	580	44,987	44,090

TABLE 1.26

1993 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Afton	1	34	56	91	2	52
Albert Lea	1	151	298	450	1	218
Alexandria	0	118	335	453	0	187
Andover	1	83	136	220	1	136
Anoka	0	136	351	487	0	197
Apple Valley	1	175	251	427	1	266
Arden Hills	0	101	223	324	0	139
Aurora	0	4	20	24	0	8
Austin	0	128	361	489	0	174
Baxter	0	54	61	115	0	93
Bayport	0	6	20	26	0	8
Belle Plaine	0	14	48	62	0	21
Bemidji	0	83	318	401	0	109
Benson	0	9	52	61	0	15
Big Lake	1	19	37	57	1	36
Blaine	3	324	567	894	4	478
Bloomington	4	714	1,768	2,486	4	1,001
Blue Earth	0	11	40	51	0	14
Brainerd	1	151	367	519	1	227
Branch	1	29	43	73	1	58
Breckenridge	0	27	74	101	0	46
Brooklyn Center	1	262	444	707	1	386
Brooklyn Park	4	434	526	964	4	665
Buffalo	1	48	126	175	1	66
Burnsville	2	327	730	1,059	2	479
Byron	0	7	17	24	0	10
Caledonia	0	14	30	44	0	18
Cambridge	1	28	99	128	1	38
Cannon Falls	0	17	47	64	0	18
Champlin	0	69	142	211	0	110
Chanhassen	2	91	244	337	3	141
Chaska	3	68	182	253	3	112
Chisholm	0	11	47	58	0	25
Circle Pines	0	12	38	50	0	18
Cloquet	1	61	76	138	1	104
Cold Spring	0	8	28	36	0	10
Columbia Heights	1	107	180	288	1	154
Coon Rapids	1	410	842	1,253	1	618
Corcoran	0	10	41	51	0	21
Cottage Grove	0	101	264	365	0	145
Crookston	0	25	91	116	0	27
Crystal	1	109	184	294	1	180
Dayton	0	17	45	62	0	34
Deephaven	0	9	14	23	0	12
Delano	0	23	33	56	0	45
Detroit Lakes	0	58	101	159	0	88
Dilworth	0	8	10	18	0	13
Duluth	2	515	994	1,511	2	749
Eagan	4	270	593	867	5	406
East Bethel	1	53	96	150	1	88

TABLE 1.26 CONTINUED

1993 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
East Grand Forks	0	39	118	157	0	55
Eden Prairie	7	276	723	1,006	8	395
Edina	1	278	610	889	1	395
Elk River	0	66	175	241	0	105
Ely	0	17	52	69	0	21
Eveleth	0	14	69	83	0	26
Excelsior	0	22	33	55	0	25
Fairmont	0	74	215	289	0	115
Falcon Heights	1	30	75	106	1	36
Faribault	2	125	288	415	3	185
Farmington	1	37	66	104	1	63
Fergus Falls	0	77	229	306	0	111
Forest Lake	0	39	105	144	0	58
Fridley	0	252	411	663	0	364
Gilbert	2	9	23	34	2	12
Glencoe	0	19	57	76	0	30
Glenwood	0	13	34	47	0	13
Golden Valley	1	168	436	605	1	226
Goodview	0	5	22	27	0	3
Grand Rapids	1	51	188	240	2	79
Granite Falls	0	9	24	33	0	15
Ham Lake	0	45	107	152	0	63
Hastings	1	91	187	279	1	133
Hermantown	0	46	67	113	0	71
Hibbing	2	129	239	370	2	194
Hopkins	1	140	241	382	1	192
Hoyt Lakes	0	2	18	20	0	3
Hugo	1	26	65	92	1	37
Hutchinson	0	65	175	240	0	96
Independence	1	25	52	78	1	40
International Falls	1	32	106	139	1	51
Inver Grove Heights	1	129	246	376	1	186
Jackson	0	11	34	45	0	14
Jordan	0	8	39	47	0	8
Kasson	0	10	29	39	0	16
La Crescent	0	12	53	65	0	15
Lake City	0	25	75	100	0	42
Lake Elmo	1	49	119	169	2	76
Lakeville	0	146	310	456	0	225
Lauderdale	1	19	48	68	1	25
Le Sueur	0	18	60	78	0	27
Lindstrom	0	19	25	44	0	28
Lino Lakes	0	45	170	215	0	66
Litchfield	0	27	86	113	0	38
Little Canada	0	84	245	329	0	119
Little Falls	0	48	113	161	0	67
Long Prairie	0	11	47	58	0	166
Luverne	0	21	63	84	0	25
Mahtomedi	0	11	34	45	0	17

1993 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Mankato	1	296	776	1,073	1	433
Maple Grove	2	127	351	480	2	176
Maplewood	3	288	675	966	3	445
Marshall	0	74	212	286	0	111
Medina	0	23	90	113	0	45
Melrose	0	8	34	42	0	11
Mendota Heights	0	54	120	174	0	73
Minneapolis	26	4,229	9,842	14,097	26	5,957
Minnetonka	2	274	611	887	2	374
Minnetrista	0	35	100	135	0	50
Montevideo	1	30	71	102	1	44
Monticello	0	35	103	138	0	58
Moorhead	1	195	578	774	1	281
Mora	0	14	37	51	0	22
Morris	0	18	57	75	0	25
Mound	0	25	55	80	0	40
Mounds View	0	52	97	149	0	78
Mountain Iron	0	17	35	52	0	28
New Brighton	1	121	255	377	1	174
New Hope	0	84	150	234	0	124
Newport	0	61	166	227	0	93
New Prague	0	2	43	45	0	2
New Ulm	0	90	184	274	0	127
Northfield	2	57	119	178	2	84
North Mankato	0	24	114	138	0	34
North Oaks	0	8	26	34	0	9
North St. Paul	0	77	153	230	0	122
Oakdale	0	89	154	243	0	123
Oak Park Heights	0	26	71	97	0	32
Olivia	0	5	33	38	0	8
Orono	1	44	132	177	1	70
Ortonville	1	13	34	48	1	18
Osseo	0	33	58	91	0	51
Otsego	3	30	50	83	3	51
Owatonna	1	118	349	468	1	188
Park Rapids	0	19	43	62	0	33
Pine City	0	20	44	64	0	37
Pipestone	0	19	62	81	0	23
Plainview	1	6	20	27	1	9
Plymouth	2	283	610	895	2	408
Princeton	0	34	76	110	0	57
Prior Lake	2	75	93	170	2	127
Proctor	0	14	24	38	0	18
Ramsey	1	75	149	225	1	117
Red Wing	1	133	392	526	1	182
Redwood Falls	0	22	63	85	0	34
Richfield	2	355	873	1,230	2	498
Robbinsdale	0	90	211	301	0	121
Rochester	1	453	1,281	1,735	1	625

TABLE 1.26 CONTINUED

1993 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Rockford	0	6	25	31	0	9
Roseau	0	8	24	32	0	16
Rosemount	0	58	105	163	0	91
Roseville	1	299	789	1,089	1	415
St. Anthony	1	33	59	93	1	51
St. Charles	0	5	21	26	0	8
St. Cloud	2	570	1,257	1,829	3	848
St. Francis	2	9	20	31	2	18
St. James	0	18	59	77	0	32
St. Joseph	0	14	35	49	0	19
St. Louis Park	2	246	677	925	2	329
St. Michael	0	5	14	19	0	6
St. Paul	10	2,478	6,481	8,969	10	3,492
St. Paul Park	0	16	45	61	0	22
St. Peter	1	30	75	106	1	47
Sartell	0	15	27	42	0	23
Sauk Centre	0	24	63	87	0	30
Sauk Rapids	0	58	121	179	0	95
Savage	0	73	189	262	0	113
Shakopee	1	132	333	466	1	195
Shoreview	0	103	253	356	0	153
Shorewood	0	32	74	106	0	48
Silver Bay	1	0	14	15	1	3
Sleepy Eye	1	17	45	63	1	25
South St. Paul	1	113	312	426	1	165
Spring Lk Park	0	55	97	152	0	74
Spring Valley	0	7	25	32	0	14
Staples	0	12	43	55	0	20
Stewartville	0	10	31	41	0	11
Stillwater	0	70	260	330	0	102
Thief River Falls	0	60	123	183	0	77
Two Harbors	0	12	59	71	0	16
Vadnais Heightsts	0	74	236	310	0	108
Victoria	0	25	40	65	0	38
Virginia	1	60	174	235	1	76
Waconia	0	9	25	34	0	13
Wadena	1	28	92	121	1	45
Waite Park	0	46	176	222	0	63
Waseca	1	22	104	127	2	27
Wayzata	0	47	125	172	0	63
Wells	0	7	36	43	0	10
West St. Paul	2	149	245	396	2	214
White Bear Lake	0	179	448	627	0	267
Willmar	0	156	362	520	2	249
Windom	0	19	41	60	0	31
Winona	0	209	497	706	0	284
Woodbury	0	113	240	353	0	1632
Worthington	2	52	203	257	2	70

TABLE I.27

1993 CRASHES BY TIME AND DAY

Hour Beginning	Total Crashes	Fatal Crashes	Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
			All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal
Midnight	1,556	21	329	5	131	2	118	0	143	2	203	3	224	4	408	5
1:00	2,418	24	599	7	205	0	191	2	183	1	263	5	362	3	615	6
2:00	1,339	22	317	6	111	1	120	1	109	4	144	1	194	1	344	8
3:00	849	5	222	1	77	0	72	0	66	1	95	0	114	1	203	2
4:00	709	2	151	1	78	0	75	0	72	0	74	0	87	0	172	1
5:00	1,032	5	118	0	167	2	133	2	126	0	164	0	162	0	162	1
6:00	2,291	27	130	1	401	5	461	4	395	4	364	3	362	7	178	3
7:00	5,191	12	137	4	938	2	1,064	0	959	1	917	4	953	0	223	1
8:00	4,466	12	168	3	800	2	806	1	835	3	736	2	772	0	349	1
9:00	3,651	12	276	1	569	1	571	1	562	2	580	2	606	3	487	2
10:00	3,914	23	388	3	532	5	486	2	533	2	634	5	626	5	715	1
11:00	4,914	13	474	1	670	2	669	2	676	5	777	0	798	1	850	2
Noon	5,869	21	661	3	817	2	749	1	816	3	855	6	1,055	5	916	1
1:00	5,345	25	600	3	747	4	734	4	744	3	803	3	955	6	762	2
2:00	6,432	26	608	1	937	4	897	4	1,084	5	930	1	1,155	7	821	4
3:00	7,982	31	674	6	1,208	4	1,208	3	1,257	4	1,205	3	1,544	9	786	2
4:00	8,088	38	655	5	1,085	3	1,245	5	1,442	4	1,276	5	1,625	8	760	8
5:00	8,464	26	737	3	1,134	1	1,392	7	1,570	4	1,339	3	1,548	5	744	3
6:00	5,796	22	627	3	740	3	859	4	1,035	1	835	3	1,018	2	682	6
7:00	4,351	14	512	2	561	2	627	1	720	2	614	4	698	3	619	0
8:00	3,557	28	390	4	425	3	516	2	569	7	499	5	641	3	517	4
9:00	3,742	22	425	2	447	0	561	6	538	3	525	3	678	4	568	4
10:00	3,338	27	365	3	368	1	391	5	461	0	435	2	682	10	636	6
11:00	2,462	19	248	3	218	1	293	4	302	0	314	2	582	4	505	5
Unknown	3,151	0	390	0	413	0	425	0	493	0	489	0	517	0	424	0
Total	100,907	477	10,201	71	13,779	50	14,663	61	15,790	61	15,070	65	17,958	91	13,446	78

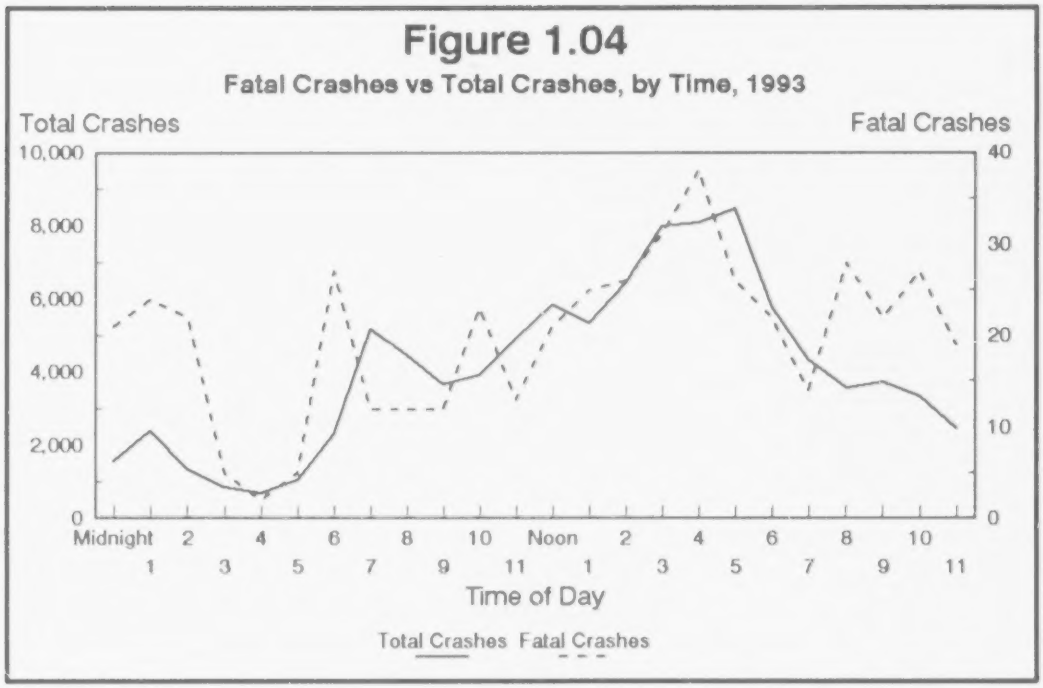


TABLE 1.28

1993 CRASHES, FATALITIES, AND INJURIES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
January	21	2,541	7,814	10,376	26	3,737
February	18	1,947	5,393	7,358	20	2,862
March	34	2,325	6,038	8,397	34	3,391
April	33	1,925	4,141	6,099	35	2,857
May	45	2,514	4,910	7,469	57	3,702
June	31	2,739	5,353	8,123	33	4,194
July	55	2,874	5,238	8,167	62	4,361
August	48	2,730	4,888	7,666	57	4,087
September	52	2,662	5,449	8,163	56	3,957
October	53	2,628	5,940	8,621	69	3,953
November	45	2,644	7,528	10,217	46	3,850
December	42	2,728	7,481	10,251	43	4,036
Total	477	30,257	70,173	100,907	538	44,987

TABLE I.29

HOLIDAY CRASH SUMMARY, 1989 - 1993

Holiday Period	Year	Hours*	Total Crashes	Fatal Crashes	Personal Injury Crashes	Killed	Injured
Memorial Day	1989	78	749	7	288	7	426
(For 1993, the holiday	1990	78	861	4	310	4	497
period was 6 PM Fri.,	1991	78	739	4	230	4	333
May 28 - midnight	1992	78	682	7	232	7	388
Mon., May 31)	1993	78	723	6	249	8	415
July 4th	1989	102	1,079	13	439	14	708
(For 1993, the holiday	1990	30	351	2	142	2	216
period was 6 PM Fri.,	1991	102	988	13	392	15	644
July 2 - midnight	1992	78	702	7	248	9	422
Mon., July 5)	1993	78	781	11	261	12	487
Labor Day	1989	78	801	4	289	4	413
(For 1993, the holiday	1990	78	713	8	307	10	486
period was 6 PM Fri.,	1991	78	655	8	236	12	403
Sep. 3 - midnight	1992	78	723	6	250	7	413
Mon., Sep. 6)	1993	78	648	4	254	5	430
Thanksgiving	1989	102	1,180	6	313	6	482
(For 1993, the holiday	1990	102	845	8	237	11	377
period was 6 PM Wed.,	1991	102	1,444	5	305	10	452
Nov. 24 - midnight	1992	102	1,066	6	295	7	444
Sun., Nov. 28)	1993	102	1,773	7	375	7	581
Christmas	1989	78	1,247	7	347	8	518
(For 1993, the holiday	1990	102	1,907	2	443	3	662
period was 6 PM Thur.	1991	54	414	2	114	2	164
Dec. 23 - midnight	1992	102	1,117	4	285	7	425
Sun., Dec. 26)	1993	78	649	2	171	2	256
New Year's							
(For 1992-93, the	1989/90	78	972	5	248	5	398
holiday period was	1990/91	102	1,457	4	386	4	564
6 PM Thur., Dec. 30,	1991/92	54	453	2	126	2	213
1993 - midnight Sun.,	1992/93	102	1,662	5	432	6	657
Jan. 2, 1994)	1993/94	78	1,069	6	297	6	485

* Holiday period hours vary depending on the day of the week on which the holiday falls.

II: ALCOHOL - RELATED CRASHES

The 1980s saw a decrease in the percentage of drivers killed who tested positive for alcohol. This percentage declined until the mid-80s, then reached a plateau at around 50%. This percentage is now approaching 40%. In Minnesota, it is illegal to drive with an alcohol concentration of .10 or higher. Minnesota law requires alcohol testing of any driver or pedestrian, 16 years of age or older, who dies within 4 hours as a result of a traffic crash.

In September of 1986, the drinking age was raised from 19 to 21, but the law was phased in. The last year anyone under the age of 21 could legally drink was 1988; everyone had to be 21 in 1993.

"Alcohol-related" defined
In the case of fatal crashes and fatalities, both the investigating officer's perception of alcohol involvement as well as the alcohol test results for any driver, pedestrian, or bicyclist involved in the crash are used. In the case of injury crashes, injuries, and property damage crashes, only the officer's perception of alcohol involvement is used. Thus, the number of alcohol-related injury crashes, injuries, and property damage crashes are probably underestimated.

Arrests up slightly; mostly male
There were 32,518 arrests for impaired driving in 1993, up 2% from last year. Most (82%) of those arrested were male. Eight percent of those arrested were under 21 years old. Persons 20 to 24 years old made up 22% of the arrests -- the single largest age group for arrests.

Decrease in alcohol-related deaths continues
There were 196 people killed in alcohol-related crashes; this represents 36% of the total motor vehicle fatalities. In 1984, 52% of fatalities were alcohol-related; then reductions hit a plateau at around 45%. In the 90s, we are seeing incremental decreases again.

20-39 most involved age group
People from ages 20 to 39 made up 67% of alcohol-related deaths and 60% of alcohol-related injuries. The age group with the highest number of alcohol-related injuries and fatalities was persons 20-24. There were 196 people killed and 5,445 people injured in alcohol-related crashes. At least 4% of property damage crashes were alcohol-related.

Majority of alcohol-related fatalities drivers
Of the 196 fatalities, 60% were drivers or pedestrians who tested positive for alcohol. Most (69%) of the fatalities were drivers, 19% were passengers, 10% were pedestrians, and the others' traffic roles were unknown.

Alcohol-related fatal crashes differ
Fatal crashes in general were most likely to involve a collision with another vehicle. By contrast, alcohol-related fatal crashes were more likely to involve collisions with fixed objects or overturns.

Majority of drivers tested negative
Of the 355 drivers who were killed in 1993, 80% were tested for alcohol concentration. Of those tested, 61% had no alcohol in their systems; 7% had concentrations between .01 and .09; and 32% were at .10 or above. The age group from 30 to 34 years old had the highest percentage (58%) of drivers at or above .10. More than one-fourth (27%) of the dead drivers under 21 years of age tested positive for alcohol.

July high month for alcohol-related crashes
July had the highest number of alcohol-related crashes (627) and injuries (577). May had the most alcohol-related fatalities (25). Rural Trunk Highways and County State Aid Highways (combined) accounted for 67% of the alcohol-related fatalities and 49% of the injuries.

Weekends and late nights most involved
Saturday had the most alcohol-related crashes, followed by Sunday and Friday. (Remember that Sunday includes what many would consider to be late Saturday night.) These three days combined accounted for 62% of alcohol-related crashes. The hours between 10:00 PM and 2:00 AM accounted for 41% of the crashes and fatalities, and 39% of the injuries. The hour between 1:00 and 2:00 AM had the single highest number of crashes, deaths and injuries.

TABLE 2.01

DRINKING DRIVER SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992*	1993
Drunken Driving Arrests	36,638	35,383	36,390	34,664	32,827	34,562	37,261	33,574	31,973	32,518
% Male	86%	85%	85%	84%	84%	84%	83%	84%	82%	82%
% Female	14%	15%	15%	16%	16%	16%	17%	16%	18%	18%
Alcohol-Related Driver License Revocations Processed[1]	43,502	40,807	42,586	40,899	37,530	38,619	42,470	37,679	36,511	35,309
Administrative Revocations For Refusing Test	11,413	9,219	8,468	8,336	7,907	7,943	8,354	7,452	6,742	5,743
(These are included in the total number of Revocation Processed above.)										
Drivers Killed	383	372	347	297	361	368	334	327	344	355
Tested	83%	79%	81%	89%	87%	85%	78%	74%	85%	80%
Alcohol Concentration										
(.00)	42%	53%	51%	50%	52%	50%	50%	56%	58%	61%
(.01 - .09)	11%	11%	9%	7%	10%	8%	9%	9%	5%	7%
(.10 or higher)	47%	37%	41%	43%	38%	41%	42%	35%	37%	32%
Alcohol-Related Fatalities	305	261	264	224	277	275	235	212	229	196
% of Total Fatalities	52%	43%	46%	42%	45%	45%	41%	40%	39%	36%

[1] Total alcohol revocations are higher than the number of DWI arrests because they include certain multiple offenders who are revoked twice, under separate statutes, and those who have their Minnesota driver's license revoked because of an arrest outside of Minnesota.

* Data for 1992 are updated to reflect an increase in the number of Alcohol Concentration test results for drivers killed.

Information on Driver License Revocations Processed provided by the Driver and Vehicle Services division.
Information on Drunk Driving Arrests provided by the Bureau of Criminal Apprehension.
Information on Alcohol Concentration test results provided by the Fatal Accident Reporting System from information supplied by county coroners and the Bureau of Criminal Apprehension.

TABLE 2.02

DWI ARRESTS BY AGE, 1984 - 1993

Age	1984	1985	1986	1987	1988	1989	1990*	1991	1992	1993
14 & Younger	6	8	8	8	6	8	7	5	3	5
15	21	24	27	13	15	25	12	14	9	10
16	185	171	254	208	160	175	158	126	128	100
17	500	446	546	485	503	458	431	299	275	241
18	1,342	1,109	1,151	1,084	1,038	1,072	959	740	576	542
19	2,166	1,864	1,813	1,363	1,229	1,284	1,318	1,063	836	787
20	2,370	2,035	2,002	1,709	1,291	1,426	1,472	1,315	1,048	929
Total Under 21	6,590	5,657	5,801	4,870	4,242	4,448	4,357	3,562	2,875	2,614
14 & Younger	6	8	8	8	6	8	7	5	3	5
15 - 19	4,214	3,614	3,791	3,153	2,945	3,014	2,878	2,242	1,824	1,680
20 - 24	11,220	10,289	10,273	9,345	7,933	8,071	8,357	7,470	7,217	7,101
25 - 29	7,511	7,618	8,295	8,146	7,920	8,293	8,744	7,332	6,646	6,559
30 - 34	4,720	4,933	5,002	5,110	5,146	5,554	6,509	6,312	6,109	6,177
35 - 39	3,013	3,200	3,316	3,356	3,265	3,577	4,111	4,100	4,073	4,613
40 - 44	2,078	2,062	2,098	2,087	2,101	2,418	2,689	2,680	2,549	2,724
45 - 49	1,394	1,292	1,274	1,289	1,360	1,407	1,531	1,340	1,510	1,567
50 - 54	916	911	857	834	786	892	985	845	856	943
55 - 59	704	686	631	584	556	568	590	489	523	533
60 - 64	443	395	397	359	406	389	417	369	349	287
65 & Older	419	375	448	393	403	371	441	390	314	329
Total	36,638	35,383	36,390	34,664	32,827	34,562	37,261	33,574	31,973	32,518

* The total for 1990 includes 2 arrests where age was unknown.

Information provided by the Bureau of Criminal Apprehension.

"ALCOHOL - RELATED"

The term "alcohol-related" is defined differently for fatal crashes and fatalities than it is for injury crashes, injuries, and property damage crashes.

Alcohol-related fatality: The investigating officer suspected alcohol involvement and/or there was a positive blood test for alcohol for any driver, pedestrian or bicyclist involved in the crash.

Alcohol-related fatal crash: The investigating officer suspected alcohol involvement and/or there was a positive blood test for alcohol for any driver, pedestrian or bicyclist involved in the crash.

Alcohol-related injury crash/injury: The investigating officer suspected alcohol involvement for any driver, pedestrian or bicyclist involved in the crash. Since only the officer's perception is used in this definition, alcohol-related injury crashes and injuries are probably underestimated.

Alcohol-related property damage crash: The investigating officer suspected alcohol involvement for any driver, pedestrian or bicyclist involved in the crash. Since only the officer's perception is used in this definition, alcohol-related property damage crashes are probably underestimated.

TABLE 2.03

AGE OF PERSONS KILLED AND INJURED IN 1993 ALCOHOL - RELATED CRASHES

Age	Killed[1]	Injured[2]
0 - 4	3	55
5 - 9	0	83
10 - 14	1	85
15 - 19	13	770
20 - 24	39	1,174
25 - 29	28	822
30 - 34	34	738
35 - 39	31	523
40 - 44	11	367
45 - 49	13	206
50 - 54	9	152
55 - 59	2	86
60 - 64	4	49
65 - 69	3	45
70 - 74	2	42
75 - 79	2	23
80 - 84	0	11
85 & Older	1	17
Not Stated	0	197
Total	196*	5,445

[1] Includes alcohol test information as well as officer's perception of alcohol noted on accident report.

[2] Includes only police officer's perception of alcohol noted on accident report.

* 13 of the 196 alcohol-related fatalities were pedestrians who had been drinking. In 3 of these 13 cases, the motor vehicle driver had also been drinking.

TABLE 2.04

1993 ALCOHOL - RELATED FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TRAFFIC ROLE

Traffic Role	Killed	Tested	Alcohol Concentration (.00)	(.01 - .09)	(.10 or more)
Car or Truck Driver	115	107	16	15	76
Car or Truck Passenger	34	10	4	3	3
Motorcycle Driver	19	18	1	3	14
Motorcycle Passenger	3	2	0	1	1
Snowmobile Driver	1	1	0	1	0
Pedestrian	19	9	1	0	8
Other/Unknown	5	2	0	0	2
Total	196	149	22	23	104

TABLE 2.05

PERCENT OF DEATHS, INJURIES, AND PROPERTY DAMAGE CRASHES DETERMINED TO BE ALCOHOL - RELATED, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Deaths*	52%	43%	46%	42%	45%	45%	41%	40%	39%	36%
Injuries**	19%	16%	17%	17%	15%	15%	15%	13%	13%	12%
Property Damage Crashes**	7%	6%	7%	7%	5%	5%	6%	5%	5%	4%

* Includes alcohol test information as well as officer's perception of alcohol noted on accident report.
** Includes only police officer's perception of alcohol noted on accident report.

TABLE 2.06

ALCOHOL - RELATED* FATAL CRASHES BY FIRST HARMFUL EVENT, 1993

First Harmful Event	Alcohol-Related Fatal Crashes Number	Percent	All Fatal Crashes Number	Percent
Collision with:				
Another Motor Vehicle	67	37.0%	248	52.0%
Parked Motor Vehicle	3	1.7	5	1.0
Railroad Train	1	0.6	11	2.3
Bicycle	0	0.0	7	1.5
Pedestrian	15	8.3	43	9.0
Deer	1	0.6	1	0.2
Other Animal	1	0.6	3	0.6
Fixed Object	45	24.9	76	15.9
Non-Collision:				
Overturn	42	23.2	72	15.1
Submersion	1	0.6	2	0.4
Fire/Explosion	0	0.0	1	0.2
Other	5	2.8	8	1.7
Total	181	100.0%	477	100.0%

* Includes alcohol test information as well as officer's perception of alcohol noted on accident report.

TABLE 2.07

TEST RESULTS OF DRIVERS KILLED, 1984 - 1993

Year	Killed	Tested	Alcohol Concentration* (.00)	(.01 - .09)	(.10 or more)
1984	383	318	133 (42%)	36 (11%)	149 (47%)
1985	372	295	156 (53%)	31 (11%)	108 (37%)
1986	347	281	143 (51%)	24 (9%)	114 (41%)
1987	297	265	132 (50%)	18 (7%)	115 (43%)
1988	361	313	163 (52%)	32 (10%)	118 (38%)
1989	368	313	158 (50%)	26 (8%)	129 (41%)
1990	334	260	129 (50%)	23 (9%)	108 (42%)
1991	327	242	135 (56%)	22 (9%0	85 (35%)
1992	344	237	135 (57%)	13 (5%)	89 (38%)
1993	355	283	174 (61%)	19 (7%)	90 (32%)

* Percentages are based on number of motor vehicle drivers tested.

TABLE 2.08

DRIVERS KILLED WHO TESTED .01 OR HIGHER, 1984 - 1993 ("Any Alcohol")

Year	Total	Male		Female		Occurred Between Midnight - 3 AM		Under Legal Age	
1984	185	163	(88%)	22	(12%)	63	(34%)	17	(9%)
1985	139	116	(83%)	23	(17%)	60	(43%)	14	(10%)
1986	138	117	(85%)	21	(15%)	50	(36%)	16	(12%)*
1987	133	112	(84%)	21	(16%)	34	(26%)	22	(17%)
1988	150	131	(87%)	19	(13%)	32	(21%)	34	(23%)
1989	155	138	(89%)	17	(11%)	47	(30%)	26	(17%)
1990	131	110	(84%)	21	(16%)	48	(37%)	28	(21%)
1991	107	98	(92%)	9	(8%)	37	(35%)	23	(21%)
1992	102	82	(80%)	20	(20%)	39	(38%)	13	(13%)
1993	109	92	(84%)	17	(16%)	35	(32%)	11	(10%)

* On September 1, 1986, the drinking age was raised from 19 to 21.

TABLE 2.09

DRIVERS KILLED WHO TESTED .10 OR HIGHER, 1984 - 1993 ("Over Limit")

Year	Total	Male		Female		Occurred Between Midnight - 3 AM		Under Legal Age	
1984	149	132	(89%)	17	(11%)	50	(34%)	12	(8%)
1985	108	90	(83%)	18	(17%)	49	(45%)	6	(6%)
1986	114	100	(88%)	14	(12%)	42	(37%)	12	(11%)*
1987	115	98	(85%)	17	(15%)	33	(29%)	13	(11%)
1988	118	100	(85%)	18	(15%)	27	(23%)	22	(19%)
1989	129	117	(91%)	12	(9%)	42	(33%)	19	(15%)
1990	108	92	(85%)	16	(15%)	42	(39%)	22	(20%)
1991	85	79	(93%)	6	(7%)	30	(35%)	13	(15%)
1992	89	77	(87%)	12	(13%)	36	(40%)	12	(13%)
1993	90	75	(83%)	15	(17%)	32	(36%)	7	(8%)

* On September 1, 1986, the drinking age was raised from 19 to 21.

FIGURE 2.01

Drivers Killed Who Had Been Drinking
1984-1993

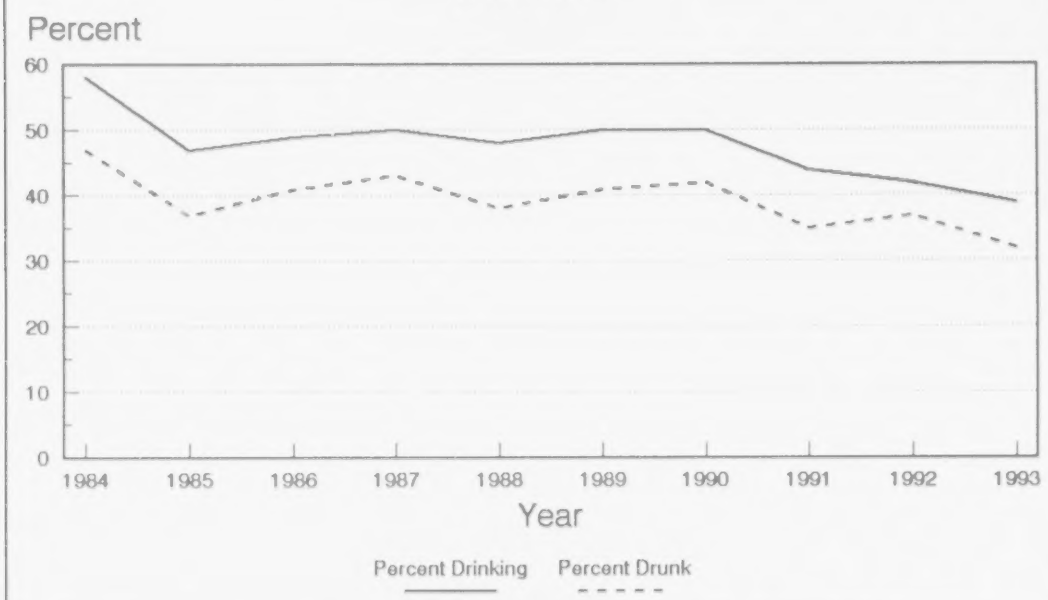


FIGURE 2.02

Percent of Drivers Killed Who Had Been Drinking, by Age, 1993

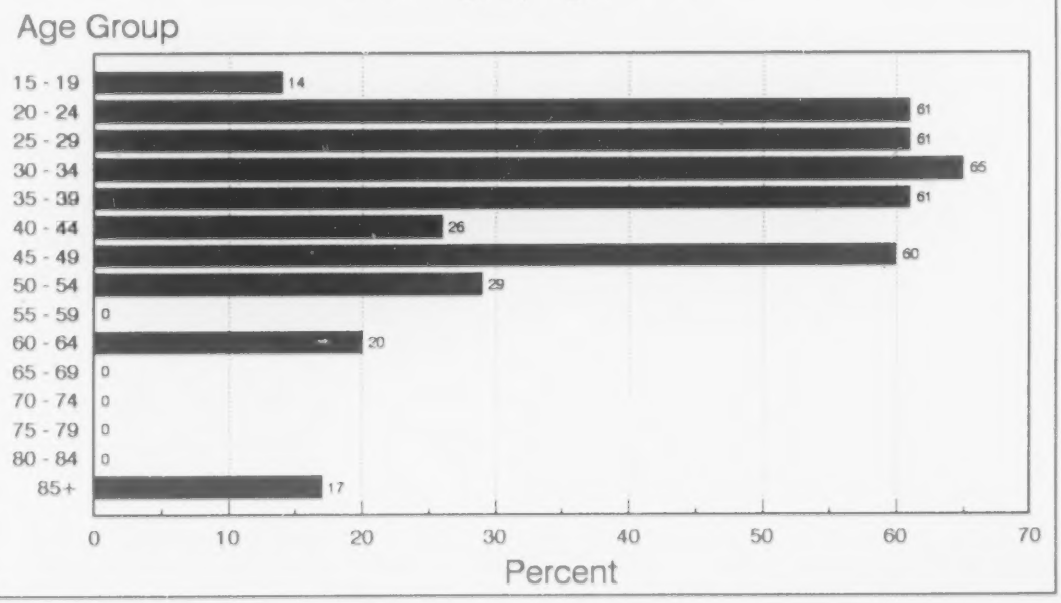


TABLE 2.10

1993 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

Age	Killed	Tested	Alcohol Concentration* (.00)	(.01 - .09)	(.10 or more)	Alcohol Concentration .00	.01-.04	.05-.09	.10-.14	.15-.19	.20-.24	.25 & Over
14 & Younger	2	2	2	0	0	2	0	0	0	0	0	0
15	1	1	1	0	0	1	0	0	0	0	0	0
16	11	6	4	2	0	4	1	1	0	0	0	0
17	8	8	8	0	0	8	0	0	0	0	0	0
18	11	9	7	1	1	7	0	1	1	0	0	0
19	6	5	5	0	0	5	0	0	0	0	0	0
20	10	10	3	1	6	3	0	1	1	4	0	1
Under 21	49	41	30 (73%)	4 (10%)	7 (17%)	30	1	3	2	4	0	1
14 & Younger	2	2	2 (100%)	0	0	2	0	0	0	0	0	0
15 - 19	37	29	25 (86%)	3 (10%)	1 (3%)	25	1	2	1	0	0	0
20 - 24	40	31	12 (39%)	4 (13%)	15 (48%)	12	2	2	4	6	3	2
25 - 29	32	28	11 (39%)	2 (7%)	15 (54%)	11	0	2	2	8	2	3
30 - 34	46	40	14 (35%)	3 (8%)	23 (58%)	14	1	2	4	5	7	7
35 - 39	43	36	14 (39%)	3 (8%)	19 (53%)	14	2	1	1	2	6	10
40 - 44	20	19	14 (74%)	1 (5%)	4 (21%)	14	1	0	0	1	1	2
45 - 49	12	10	4 (40%)	1 (10%)	5 (50%)	4	0	1	2	0	2	1
50 - 54	26	24	17 (71%)	2 (8%)	5 (21%)	17	0	2	1	0	2	2
55 - 59	12	9	9 (100%)	0 (0%)	0 (0%)	9	0	0	0	0	0	0
60 - 64	13	10	8 (80%)	0 (0%)	2 (20%)	8	0	0	0	1	0	1
65 - 69	15	13	13 (100%)	0 (0%)	0 (0%)	13	0	0	0	0	0	0
70 - 74	11	6	6 (100%)	0 (0%)	0 (0%)	6	0	0	0	0	0	0
75 - 79	18	12	12 (100%)	0 (0%)	0 (0%)	12	0	0	0	0	0	0
80 - 84	17	8	8 (100%)	0 (0%)	0 (0%)	8	0	0	0	0	0	0
85 & Older	11	6	5 (83%)	0 (0%)	1 (17%)	5	0	0	1	0	0	0
Total	355	283	174 (61%)	19 (7%)	90 (32%)	174	7	12	16	23	23	28

* Percentages are based on number of motor vehicle drivers tested.

TABLE 2.11

1993 ALCOHOL - RELATED CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
January	8	215	258	481	9	357
February	7	222	244	473	8	365
March	11	277	274	562	11	420
April	20	236	222	478	20	386
May	23	314	255	592	25	503
June	12	292	204	508	12	499
July	22	368	237	627	24	577
August	14	340	199	553	18	518
September	17	273	239	529	19	418
October	20	365	257	642	22	532
November	17	259	285	561	17	397
December	10	305	278	593	11	473
Total	181	3,466	2,952	6,599	196	5,445

TABLE 2.12

1993 ALCOHOL - RELATED CRASHES BY ROADWAY TYPE

Roadway Type	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Urban Interstate	10	210	210	430	10	308
Rural Interstate	6	48	42	96	9	74
Urban Trunk Hwy	18	501	451	970	19	823
Rural Trunk Hwy	56	617	417	1,090	60	1,107
County State Aid Hwy	65	1,014	669	1,748	71	1,581
County Road	11	154	85	250	11	238
Township Road	4	142	85	231	5	210
Local Street	10	765	966	1,741	10	1,084
Other	1	15	27	43	1	20
Total	181	3,466	2,952	6,599	196	5,445

FIGURE 2.03

1993 Alcohol-Related Crashes by Time of Day

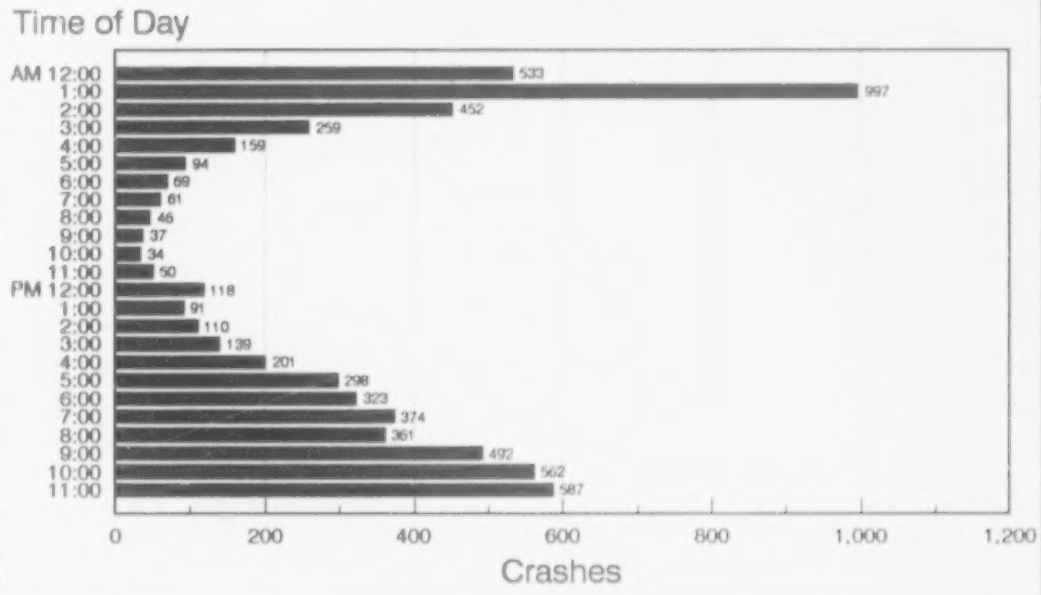


FIGURE 2.04

1993 Alcohol-Related Crashes by Day of Week

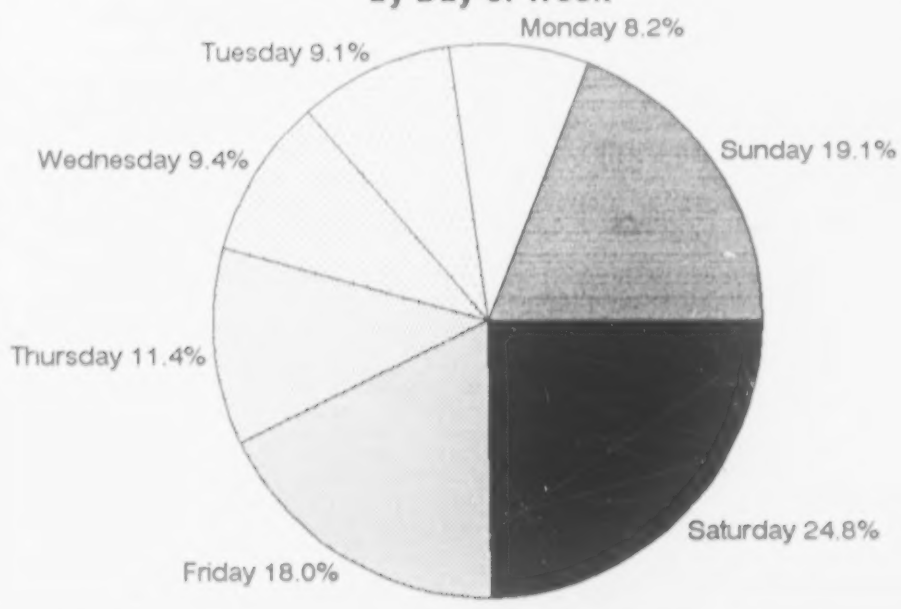


TABLE 2.13

1993 ALCOHOL - RELATED CRASHES BY TIME OF DAY AND DAY OF WEEK

Hour Beginning	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total	Killed	Injured
Midnight	132	41	29	35	66	83	147	533	18	409
1:00 AM	264	71	66	57	106	142	291	997	24	750
2:00 AM	120	20	38	39	39	53	143	452	23	343
3:00 AM	91	14	11	16	21	37	69	259	5	186
4:00 AM	44	7	10	10	11	23	54	159	2	131
5:00 AM	19	6	7	10	8	7	37	94	2	76
6:00 AM	27	4	5	7	7	2	17	69	10	56
7:00 AM	20	4	5	4	2	9	17	61	2	36
8:00 AM	15	2	6	2	6	5	10	46	0	32
9:00 AM	3	3	6	10	2	3	10	37	2	37
10:00 AM	8	2	3	3	3	4	11	34	1	30
11:00 AM	10	7	2	6	6	9	10	50	0	45
Noon	28	15	8	8	10	16	33	118	1	109
1:00 PM	16	13	14	12	6	16	14	91	2	80
2:00 PM	19	11	20	11	10	17	22	110	3	103
3:00 PM	23	12	18	12	21	25	28	139	5	128
4:00 PM	29	22	21	24	21	43	41	201	8	159
5:00 PM	49	34	28	29	42	54	62	298	10	304
6:00 PM	45	29	39	36	44	57	73	323	13	271
7:00 PM	48	32	45	38	47	68	96	374	4	332
8:00 PM	52	33	36	30	47	87	76	361	13	315
9:00 PM	52	53	58	62	63	102	102	492	10	428
10:00 PM	62	46	58	64	65	154	113	562	24	474
11:00 PM	50	50	63	85	75	139	125	587	14	480
Unknown	33	11	5	12	25	33	33	152	0	131
Total	1,259	542	601	622	753	1,188	1,634	6,599	196	5,445

III: SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS IN 1993 CRASHES

Types of safety equipment

The most common type of safety equipment is the safety belt -- a system that includes lap and shoulder belts that are operated either automatically or manually. Many recent model cars come with driver-side, and sometimes passenger-side, airbags. Child safety seats are available for children under age four. Other devices, such as booster seats, can be beneficial for young children over the age of four.

Safety benefits and legislation

Studies estimate that using these safety devices reduces the risk of death and serious injury by 40% to 50%. In view of this, the Minnesota Legislature enacted laws mandating safety equipment use. The Child Passenger Protection Act took effect in 1982, and was amended in 1983 and 1987. It requires children under four to be properly restrained in a federally approved child car seat. The 1993 Legislature increased the fine for not using a child car seat from $25 to $50. The state's mandatory seat belt law went into effect in 1986 and was amended in 1988 and 1991. It requires all front seat occupants (and children from four through ten, regardless of seating position) to wear safety belts.

Tables in this section focus on use of safety equipment by people in crashes who were occupants of vehicles normally equipped with safety equipment (e.g., passenger cars and trucks rather than motorcycles). The data are problematic in this respect, though: safety equipment use could not be determined by the reporting officer for almost a fifth of the people killed or injured. In addition, the accuracy of the remaining data (reported use and non-use) is uncertain. Assuming, though, that reporting behavior does not change radically from year to year, the data can be useful in indicating general trends in usage.

Safety Belt Use Responds to Legislation

In 1984, prior to the seat belt law, only 6% of the vehicle occupants killed in crashes were reported to have been using safety re-straints, compared to 32% in 1993. In 1984, only 8% of the injured occupants were reported to have been using safety equipment, compared to 59% in 1993. Observational surveys of belt use conducted at random sites in the state support the belief that legislation can significantly affect behavior. Those surveys showed about a 12 percentage point increase in use after the first seat belt law went into effect in 1986, about a 15 point increase after the $10 fine was added in 1988, and about a 5 point increase when the fine was increased to $25 in 1991.

Belt use increases slightly in 1993

The August 1993 observational survey estimated a four-percentage point increase, to 55%, in belt use statewide compared to 1992. The 55% average conceals variation by region and conditions. Belt use was higher in the metro area and on roads with higher speed limits.

Over 40,000 occupants killed or injured

There were 439 people killed and 40,450 injured in vehicles equipped with seat belts. Teenagers (15- to 19-year-olds) had the highest number killed and injured.

Belt use lower among children and teenagers

Based on officer reports, use was relatively low among teenagers and younger children. For example, only 29% of severely injured 11- to 19-year-olds used their safety belts. Use was higher among those aged 40 and older.

Belt use lower on smaller roads

Belt use was highest (69%) on interstate highways, and next highest (61%) on the state and federal trunk highways. Use was lowest on township roads (38%) and next lowest on county roads (50%).

Belt use lower in western region of state

Belt use among injured occupants was highest in the metro region (63%) and relatively high in the Northeast and Central regions. It was lowest in the Northwest region (only 40%) and also relatively low in the West Central and Southwest regions. These western regions may be influenced by North and South Dakota which did not pass seat belt laws until 1993 and 1994, respectively.

Airbag deployments increasing

There were only 598 airbag deployments in 1993, up from 381 in 1992.

TABLE 3.01

MOTOR VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE AND SEVERITY OF INJURY, 1993

		Injured			
Age Group	Killed	Severe	Moderate	Minor	Total
0 - 4	11	35	247	446	728
5 - 9	5	55	381	556	992
10 - 14	8	82	465	758	1,305
15 - 19	59	552	2,602	3,702	6,856
20 - 24	53	526	1,968	3,216	5,710
25 - 29	35	374	1,379	2,654	4,407
30 - 34	42	336	1,214	2,504	4,054
35 - 39	41	272	972	2,130	3,374
40 - 44	20	227	821	1,750	2,798
45 - 49	14	126	590	1,336	2,052
50 - 54	26	128	410	972	1,510
55 - 59	13	114	331	711	1,156
60 - 64	15	87	270	620	977
65 - 69	19	92	277	495	864
70 - 74	16	82	261	485	828
75 - 79	25	63	216	373	652
80 - 84	23	40	135	229	404
85 & Older	13	24	89	140	253
Not Stated	1	113	368	1,049	1,530
Total	439	3,328	12,996	24,126	40,450

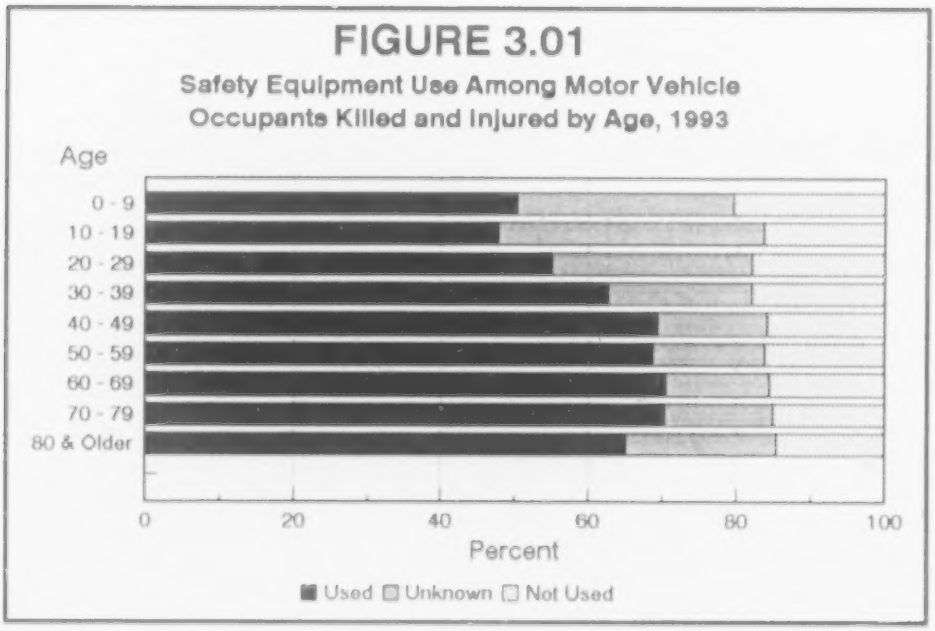


TABLE 3.02

SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE AND INJURY SEVERITY, 1993

Age Group	Restraint Use	Killed		Injured							
				Severe		Moderate		Minor		Total	
		#	%	#	%	#	%	#	%	#	%
0 - 3 Years	Used	7	63.6	6	31.6	73	45.6	162	49.1	241	47.3
	Not Used	2	18.2	8	42.1	56	35.0	87	26.4	151	29.7
	Unknown	2	18.2	5	26.3	31	19.4	81	24.5	117	23.0
	Subtotal	11	100.0	19	100.0	160	100.0	330	100.0	509	100.0
4 - 10 Years	Used	4	66.7	31	39.2	253	47.9	474	57.8	758	53.1
	Not Used	2	33.3	29	36.7	172	32.6	205	25.0	406	28.5
	Unknown	0	0.0	19	24.1	103	19.5	141	17.2	263	18.4
	Subtotal	6	100.0	79	100.0	528	100.0	820	100.0	1,427	100.0
11 - 19 Years	Used	15	22.7	181	28.9	1,212	40.3	2,387	55.4	3,780	47.6
	Not Used	38	57.6	304	48.6	1,355	45.1	1,203	27.9	2,862	36.0
	Unknown	13	19.7	141	22.5	440	14.6	722	16.7	1,303	16.4
	Subtotal	66	100.0	626	100.0	3,007	100.0	4,312	100.0	7,945	100.0
20 - 29 Years	Used	19	21.6	321	35.7	1,589	47.5	3,698	63.0	5,608	55.4
	Not Used	55	62.5	395	43.9	1,185	35.4	1,118	19.0	2,698	26.7
	Unknown	14	15.9	184	20.4	573	17.1	1,054	18.0	1,811	17.9
	Subtotal	88	100.0	900	100.0	3,347	100.0	5,870	100.0	10,117	100.0
30 - 39 Years	Used	21	25.3	265	43.6	1,240	56.7	3,174	68.5	4,679	63.0
	Not Used	50	60.2	212	34.9	575	26.3	629	13.6	1,416	19.1
	Unknown	12	14.5	131	21.5	371	17.0	831	17.9	1,333	17.9
	Subtotal	83	100.0	608	100.0	2,186	100.0	4,634	100.0	7,428	100.0
40 - 49 Years	Used	13	38.2	176	49.9	893	63.3	2,307	74.8	3,376	69.6
	Not Used	17	50.0	102	28.9	305	21.6	295	9.6	702	14.5
	Unknown	4	11.8	75	21.2	213	15.1	484	15.7	772	15.9
	Subtotal	34	100.0	353	100.0	1,411	100.0	3,086	100.0	4,850	100.0
50 - 59 Years	Used	11	28.2	123	50.8	480	64.8	1,247	74.1	1,850	69.4
	Not Used	20	51.3	69	28.5	138	18.6	178	10.6	385	14.4
	Unknown	8	20.5	50	20.7	123	16.6	258	15.3	431	16.2
	Subtotal	39	100.0	242	100.0	741	100.0	1,683	100.0	2,666	100.0
60 - 69 Years	Used	15	44.1	94	52.5	371	67.8	840	75.3	1,305	70.9
	Not Used	13	38.2	46	25.7	100	18.3	105	9.4	251	13.6
	Unknown	6	17.6	39	21.8	76	13.9	170	15.2	285	15.5
	Subtotal	34	100.0	179	100.0	547	100.0	1,115	100.0	1,841	100.0
70 & Older	Used	36	46.8	114	54.5	474	67.6	897	73.1	1,485	69.5
	Not Used	34	44.2	45	21.5	133	19.0	150	12.2	328	15.3
	Unknown	7	9.1	50	23.9	94	13.4	180	14.7	324	15.2
	Subtotal	77	100.0	209	100.0	701	100.0	1,227	100.0	2,137	100.0
Age Not Stated	Used	0	0.0	44	38.9	149	40.5	456	43.5	649	42.4
	Not Used	0	0.0	35	31.0	121	32.9	139	13.3	295	19.3
	Unknown	1	100.0	34	30.1	98	26.6	454	43.3	586	38.3
	Subtotal	1	100.0	113	100.0	368	100.0	1,049	100.0	1,530	100.0
All Ages	Used	141	32.1	1,355	40.7	6,734	51.8	15,642	64.8	23,731	58.7
	Not Used	231	52.6	1,245	37.4	4,140	31.9	4,109	17.0	9,494	23.5
	Unknown	67	15.3	728	21.9	2,122	16.3	4,375	18.1	7,225	17.9
	Total	439	100.0	3,328	100.0	12,996	100.0	24,126	100.0	40,450	100.0

(Persons aged 0 through 3 and 4 through 10 years old are categorized in separate groups because Minnesota law makes special provisions for these age groups. Percentages may not sum to 100.0% due to rounding.)

TABLE 3.03

MOTOR VEHICLE OCCUPANTS BY INJURY SEVERITY, AIRBAG DEPLOYMENT AND BELT USE,* 1993

	Airbag Deployed		Airbag Not in Vehicle or Not Deployed		Safety Restraint Use	
	Belt Used	Belt Not Used	Belt Used	Belt Not Used	Unknown	Total
Killed	1	3	140	228	67	439
Injured						
Severe	18	9	1,337	1,236	728	3,328
Moderate	116	15	6,618	4,125	2,122	12,996
Minor	124	16	15,518	4,093	4,375	24,126
No Apparent Injury	274	22	85,736	10,508	106,902	203,442
Total	533	65	109,349	20,190	114,194	244,331

* "Belt use" is used as a shorthand term for safety restraint use. Safety restraint devices are normally lap or shoulder belts, but they can also be child safety seats or booster seats.

TABLE 3.04

PERCENT OF INJURED OR KILLED MOTOR VEHICLE OCCUPANTS WHO USED SAFETY EQUIPMENT, BY INJURY SEVERITY AND YEAR, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Killed										
Used	5.8	8.8	9.2	17.7	21.1	20.5	20.9	24.4	27.5	32.1
Not Used	64.5	70.8	69.7	67.9	64.1	63.8	65.9	57.0	58.5	52.6
Unknown	29.7	20.4	21.1	14.4	14.8	15.7	13.2	18.5	14.0	15.3
Injured										
Severe Injuries										
Used	5.9	8.4	16.9	22.0	30.5	31.6	32.6	35.7	36.6	40.7
Not Used	46.3	60.3	57.8	55.1	48.9	47.9	48.4	40.7	41.7	37.4
Unknown	47.8	31.3	25.4	22.9	20.6	20.5	18.9	23.6	21.7	21.9
Moderate Injuries										
Used	7.4	10.7	20.8	29.3	38.2	39.9	41.1	45.9	48.5	51.8
Not Used	44.8	58.8	53.4	48.4	41.7	40.6	40.2	33.7	34.0	31.9
Unknown	47.8	30.4	25.9	22.3	20.1	19.5	18.7	20.4	17.5	16.3
Minor Injuries										
Used	9.0	14.4	25.7	36.2	42.9	45.5	45.3	54.3	61.4	64.8
Not Used	34.7	45.6	38.9	32.2	24.4	21.9	23.1	19.8	19.9	17.0
Unknown	56.3	40.0	35.3	31.6	32.7	32.6	31.6	25.9	18.8	18.1
Total Injured										
Used	8.0	12.4	23.0	32.0	39.9	42.3	42.7	49.8	55.0	58.7
Not Used	49.1	54.2	46.5	40.9	32.9	30.7	31.2	26.3	26.4	23.5
Unknown	42.9	33.4	30.5	27.1	27.1	27.0	26.1	23.9	18.6	17.9

TABLE 3.05

SAFETY EQUIPMENT USE BY MOTOR VEHICLE OCCUPANTS KILLED AND INJURED, BY ROADWAY TYPE, 1993

	Used		Not Used		Unknown		Total	
Roadway Type	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Interstate	2,163	69.4%	586	18.8%	369	11.8%	3,118	100.0%
Trunk Highway	9,244	61.2	3,509	23.2	2,343	15.5	15,096	100.0
County State-Aid Highway	6,499	56.5	2,740	23.8	2,263	19.7	11,502	100.0
County Road	566	50.0	351	31.0	214	18.9	1,131	100.0
Township Road	354	38.1	374	40.3	201	21.6	929	100.0
Local Street	5,003	55.6	2,126	23.6	1,877	20.8	9,006	100.0
Other Road	43	40.2	39	36.4	25	23.4	107	100.0
Total	23,872	58.4%	9,725	23.8%	7,292	17.8%	40,889	100.0%

TABLE 3.06

SAFETY EQUIPMENT USE BY MOTOR VEHICLE OCCUPANTS KILLED AND INJURED, BY EMS REGION* OF STATE, 1993

EMS Region	Percent Used	Percent Not Used	Percent Unknown	Number of People
Metropolitan	62.7%	18.8%	18.5%	22,693
Central	56.6	27.8	15.6	5,146
Northeast	57.9	26.0	16.2	2,380
Northwest	39.6	40.9	19.4	1,188
South Central	53.6	29.2	17.2	1,689
Southeast	55.1	29.3	15.6	3,640
Southwest	48.1	34.1	17.8	2,259
West Central	46.8	30.8	22.4	1,793
Unknown	44.6	41.6	13.9	101
Statewide	58.4%	23.8%	17.8%	40,889

*There are eight Emergency Medical Services (EMS) regions in the state, shown in the map at right.

TABLE 3.07

PERCENT OF FRONT SEAT OCCUPANTS WEARING SAFETY BELTS, BY DATE OF OBSERVATION STUDY

	June 1986	Aug 1986	Nov 1986	Aug 1987	Aug 1988	Aug 1989	Aug 1990	Aug 1991	Aug 1992	Aug 1993
Statewide	**20%**	**33%**	**32%**	**32%**	**47%**	**44%**	**47%**	**53%**	**51%**	**55%**
Metro	30	43	39	40	51	52	54	62	62	59
Non-Metro	15	26	24	28	45	40	42	47	46	52
Weather										
Clear	19	32	33	32	47	44	47	53	52	55
Other	23	36	19	41	48	53	50	48	41	52
Time										
Rush Hour	21	31	30	30	47	42	47	53	55	59
Non-rush Hour	20	34	32	33	47	44	48	52	51	54
Day of the Week										
Weekday	19	33	33	32	45	42	45	51	51	56
Weekend	21	33	29	33	52	49	50	56	53	52
Speed										
20 MPH	14	29	33	29	35	39	46	47	39	50
40 MPH	20	32	27	30	47	46	46	56	58	57
60 MPH	28	39	36	41	57	52	53	61	62	61
Road Class										
Major Roads	23	35	31	35	48	44	49	53	55	57
Local Roads	17	31	32	29	46	45	46	52	48	53

The seat belt law, which requires all front seat passengers and all passengers under the age of eleven to wear safety belts, became effective in Minnesota on August 1, 1986. Only the use of shoulder belts could be observed in the observation studies. The June 1986 survey was conducted prior to the implementation of this law; all other studies were conducted after the law went into effect. The August 1988 study was conducted after the amendment adding a $10.00 fine went into effect. The August 1991 study was conducted after an amendment increasing the fine to $25.00 went into effect.

The usage rate is not a simple ratio of the number of persons observed belted to the total number of people observed. It is, instead, the ratio of estimated time on the road that front seat occupants are using safety belts to the total estimated time on the road for these occupants.

IV: MOTORCYCLE CRASHES

Motorcyclists are exposed to a greater chance of injury should a crash occur because they are not protected by the body of a vehicle. In 1993, 85% of motorcycle crashes resulted in an injury or fatality; for total motor vehicle crashes, only 30% of the crashes produced an injury or fatality. Motorcycle crashes were more than five times more likely to involve a fatality.

Crashes, injuries down
There were 1,245 crashes that involved motorcycles in 1993. This is a 25% decrease from the prior five year average and is 9% fewer than in 1992. Although there were six more motorcycle fatalities than last year for a total of 34, the 1,151 total injuries represents 137 fewer motorcyclist injuries than in 1992.

Motorcycle registrations continue to decrease
The number of registered motorcycles has decreased every year since a high of 166,151 Motorcycles were registered in 1981. In 1993, there were 114,548 motorcycles registered in Minnesota. The number of licensed operators has stayed over 290,000 for the last five years. In 1993, there were 291,756 drivers licensed to operate a motorcycle.

Fatal crashes differ
Half of motorcycle crashes involved collision with another motor vehicle. These crashes accounted for 56% of motorcyclist fatalities and 49% of injuries. Another 32% of fatalities occurred in collisions with fixed objects; these crashes accounted for only 10% of injuries. Overturns were responsible for 20% of injuries, but only 6% of fatalities.

Fatal crashes rural
Twenty-three percent of crashes and 25% of injuries occurred in areas of under 1,000 population; however, 59% of the motorcycle fatalities occurred there. Urban areas of over 100,000 population accounted for 20% of crashes, 18% of injuries, and 15% of fatalities.

August has most crashes
August had the highest number of crashes (259). July had the most fatalities and injuries. The first and last three months of the year, January, February, March, October, November, and December (combined) accounted for only 8% of the crashes, 8% of the injuries, and 9% of the fatalities.

Crashes on weekends
Half of motorcycle crashes occurred on a Friday, Saturday, or Sunday. These days also accounted for over three-fourths of the fatal crashes.

Late night crashes often fatal
Only 9% of crashes occurred between Midnight and 3:00 AM, but 27% of the fatal crashes happened then. The afternoon hours from 3:00 to 6:00 PM accounted for 23% of total crashes and 21% of fatal crashes.

Injured between 20 and 39
People from 20 to 39 years old made up 65% of the injuries, and 76% of the fatalities. As in past years, most of the motorcyclists killed or injured were male; 82% of fatalities and 86% of injuries were to males. Of those injured, 26% were severe, 51% were moderate, and 23% were minor.

Majority not wearing helmets
Only 6% of motorcyclists killed and 26% of those injured were wearing a helmet at the time of the crash.

Half were over limit
Of the motorcycle operators killed, 90% were tested for alcohol concentrations. Of those tested, over half (54%) were at or above .10; 12% were between .01 and .09; and 35% had no alcohol in their systems.

Other drivers contribute to crashes
In multi-vehicle motorcycle crashes, 52% of motorcycle drivers committed "no improper driving" compared with 35% of the other drivers in these crashes. In single vehicle crashes, 21% of motorcycle drivers had "no improper driving." The top factor in multi-vehicle crashes for both drivers was driver inattention/ distraction. In single vehicle crashes, it was illegal or unsafe speed.

TABLE 4.01

MOTORCYCLE CRASH SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	Record High (since 1970)
Total Crashes	**2,768**	**2,748**	**2,318**	**2,121**	**1,969**	**1,748**	**1,735**	**1,461**	**1,361**	**1,245**	**3,308 (1980)**
Fatal Crashes	59	75	63	51	57	37	46	38	29	33	112 (1980)
Personal Injury Crashes	2,302	2,238	1,891	1,692	1,628	1,463	1,446	1,198	1,133	1,022	2,728 (1980)
Property Damage Crashes	407	435	364	378	284	248	243	225	199	190	537 (1976)
Persons Killed:											
Motorcyclists	62	77	66	51	58	37	50	40	28	34	121 (1980)
Non-Motorcyclists/Unknown	1	1	0	3	4	0	2	0	3	3	9 (1975)
Persons Injured:											
Motorcyclists*	2,590	2,500	2,152	1,853	1,817	1,617	1,605	1,357	1,288	1,151	3,359 (1980)
Non-Motorcyclists/Unknown	207	204	142	145	126	104	126	104	60	104	N/A
Licensed Operators	256,836	272,317	282,087	288,424	293,347	290,000	292,074	296,624	290,722	291,756	296,624 (1991)
Registered Motorcycles	153,851	151,449	141,261	134,590	128,956	123,308	120,081	117,492	116,124	114,548	166,151 (1981)
Rates:											
Fatal Motorcycle Crashes Per 100 Motorcycle Crashes	2.2	2.7	2.7	2.4	2.9	2.1	2.7	2.6	2.1	2.7	3.6 (1978)
Fatal Crashes Per 100 Crashes (All Vehicles)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8 (1970)

*1984 injury figures include some all-terrain vehicles. Fatality figures do not.

TABLE 4.02

1993 MOTORCYCLE CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Motorcyclists Killed	Motorcyclists Injured
Collision With:						
Other Motor Vehicle	17	504	100	621	19	566
Parked Motor Vehicle	1	11	18	30	0	10
Bicycle	0	10	0	10	0	4
Pedestrian	0	9	0	9	0	9
Deer	0	41	5	46	0	49
Other Animal	0	17	4	21	0	20
Fixed Object	11	99	11	121	11	112
Falling Object	0	2	4	6	0	2
Non-Collision:						
Overturn	2	199	30	231	2	234
Other	2	125	18	145	2	140
Unknown	0	5	0	5	0	5
Total	33	1,022	190	1,245	34	1,151

TABLE 4.03

1993 MOTORCYCLE CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Motorcyclists Killed	Motorcyclists Injured
100,000 and Over	5	188	58	251	5	203
50,000 - 99,999	0	88	15	103	0	98
25,000 - 49,999	2	149	17	168	2	165
10,000 - 24,999	3	178	32	213	3	196
5,000 - 9,999	1	69	15	85	1	76
2,500 - 4,999	0	31	9	40	0	33
1,000 - 2,499	1	18	2	21	1	21
Under 1,000	19	241	32	292	20	293
Unknown	2	60	10	72	2	66
Total	33	1,022	190	1,245	34	1,151

TABLE 4.04

1993 MOTORCYCLE CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Motorcyclists Killed	Motorcyclists Injured
January	0	1	0	1	0	1
February	0	2	0	2	0	2
March	1	14	4	19	1	17
April	3	87	14	104	3	98
May	2	135	17	154	2	151
June	2	191	41	234	2	219
July	11	203	35	249	11	235
August	8	205	46	259	9	227
September	4	115	24	143	4	127
October	2	59	8	69	2	64
November	0	9	1	10	0	9
December	0	1	0	1	0	1
Total	33	1,022	190	1,245	34	1,151

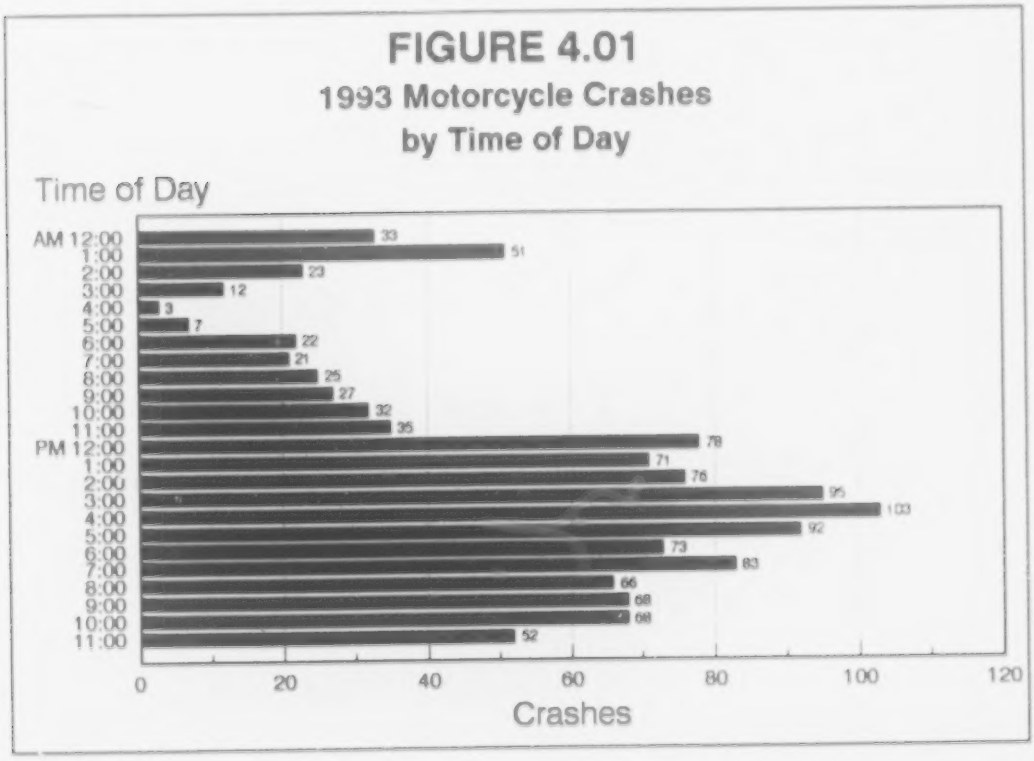


TABLE 4.05

1993 MOTORCYCLE CRASHES BY TIME AND DAY

Hour Beginning	Total Crashes	Fatal Crashes	Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
			All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal
Midnight	33	2	6	1	2	0	6	0	0	0	2	0	7	0	10	1
1:00	51	3	10	0	2	0	7	1	4	0	6	0	7	0	15	2
2:00	23	4	7	2	1	0	5	0	2	1	1	0	1	0	6	1
3:00	12	0	6	0	1	0	1	0	0	0	0	0	1	0	3	0
4:00	3	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0
5:00	7	0	0	0	1	0	2	0	0	0	1	0	1	0	2	0
6:00	22	0	1	0	4	0	3	0	4	0	7	0	1	0	2	0
7:00	21	0	1	0	1	0	4	0	3	0	4	0	7	0	1	0
8:00	25	0	3	0	2	0	3	0	4	0	3	0	6	0	4	0
9:00	27	0	2	0	4	0	3	0	5	0	3	0	3	0	7	0
10:00	32	1	2	0	6	0	6	0	1	0	2	0	3	1	12	0
11:00	35	0	6	0	3	0	5	0	4	0	7	0	6	0	4	0
Noon	78	0	12	0	14	0	11	0	8	0	13	0	11	0	9	0
1:00	71	1	9	1	10	0	15	0	5	0	13	0	12	0	7	0
2:00	76	0	15	0	14	0	10	0	8	0	8	0	11	0	10	0
3:00	95	2	21	1	9	0	16	0	9	0	11	1	16	0	13	0
4:00	103	2	22	2	14	0	9	0	18	0	10	0	21	0	9	0
5:00	92	3	18	0	5	0	15	1	15	0	7	0	22	0	10	2
6:00	73	5	10	1	11	1	12	0	7	0	12	1	9	1	12	1
7:00	83	1	14	0	7	0	10	0	8	0	13	0	12	1	19	0
8:00	66	2	13	1	7	0	6	0	9	0	7	0	12	1	12	0
9:00	68	0	14	0	7	0	6	0	11	0	9	0	10	0	11	0
10:00	68	6	9	0	5	0	4	1	12	0	11	0	11	3	16	2
11:00	52	1	10	0	4	0	8	1	4	0	8	0	9	0	9	0
Not Stated	29	0	2	0	2	0	3	0	5	0	6	0	6	0	5	0
Total	1,245	33	213	9	137	1	171	4	146	1	164	2	205	7	209	9

TABLE 4.06

MOTORCYCLISTS KILLED OR INJURED BY AGE AND GENDER, 1993

				Injured											
	Killed			Severe			Moderate			Minor			Total		
Age Group	M	F	Total	M	F	Total	M	F	Total	M	F	Total*	M	F	Total*
0 - 4	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
5 - 9	0	0	0	1	1	2	2	0	2	1	0	1	4	1	5
10 - 14	1	0	1	2	1	3	8	3	11	0	1	1	10	5	15
15 - 19	0	0	0	38	8	46	64	17	81	30	4	34	132	29	161
20 - 24	5	1	6	63	6	69	137	16	153	42	5	47	242	27	269
25 - 29	4	2	6	39	4	43	82	13	95	44	7	52	165	24	190
30 - 34	6	0	6	44	5	49	75	9	84	36	2	38	155	16	171
35 - 39	5	3	8	26	7	33	42	9	51	32	3	35	100	19	119
40 - 44	2	0	2	20	2	22	31	10	41	27	2	29	78	14	92
45 - 49	1	0	1	11	1	12	16	3	19	8	1	9	35	5	40
50 - 54	4	0	4	1	1	2	15	1	16	4	0	4	20	2	22
55 - 59	0	0	0	3	1	4	5	2	7	3	2	5	11	5	16
60 - 64	0	0	0	2	0	2	3	0	3	0	0	0	5	0	5
65 - 69	0	0	0	1	0	1	8	0	8	2	0	2	11	0	11
70 & Older	0	0	0	3	0	3	3	0	3	0	1	1	6	1	7
Not Stated	0	0	0	1	5	6	9	3	12	6	3	9	16	11	27
Total	28	6	34	255	42	297	500	87	587	235	31	267	990	160	1,151

* Where columns do not add across to total, gender was not reported on the accident report form.

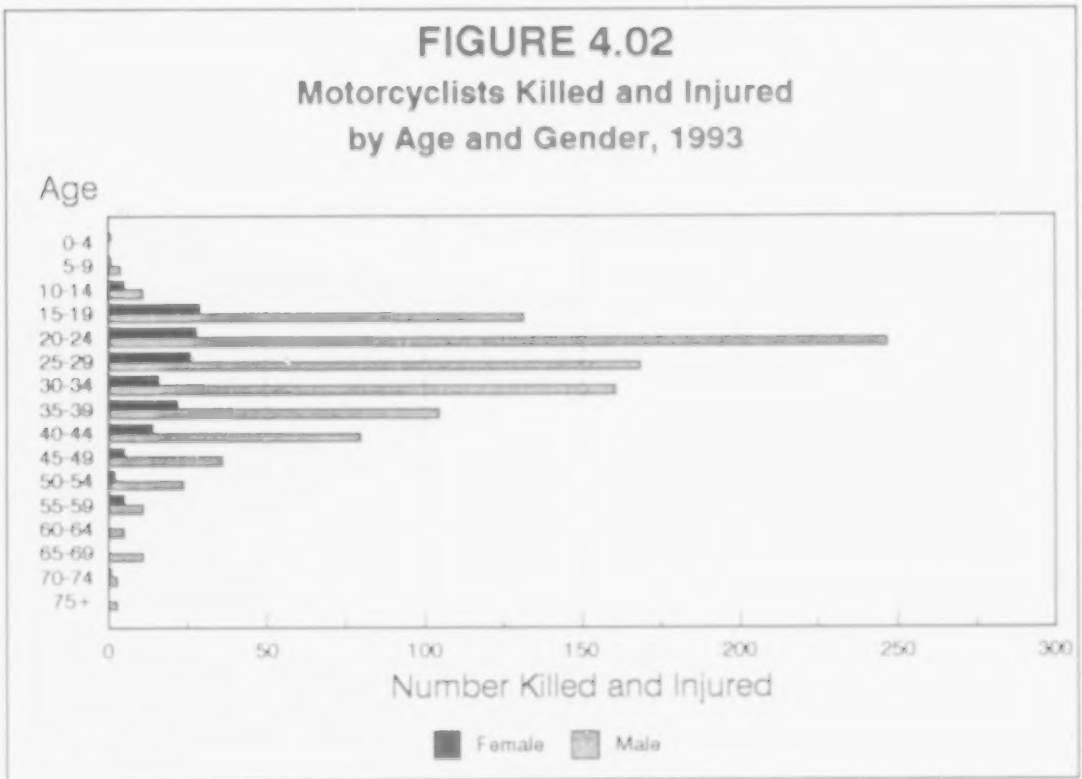


TABLE 4.07

HELMET USE BY MOTORCYCLISTS KILLED OR INJURED, 1989 - 1993

	Helmet Used		Helmet Not Used		Helmet Use Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Killed								
1989	4	10.8%	29	78.4%	4	10.8%	37	100.0%
1990	2	4.0	42	84.0	6	12.0	50	100.0
1991	11	27.5	24	60.0	5	12.5	40	100.0
1992	2	7.1	23	82.1	3	10.7	28	100.0
1993	2	5.9	30	88.2	2	5.9	34	100.0
Injured								
1989	447	27.6	886	54.8	284	17.6	1,617	100.0
1990	419	26.1	917	57.1	269	16.8	1,605	100.0
1991	310	22.8	594	43.8	453	33.4	1,357	100.0
1992	349	27.1	678	52.6	261	20.3	1,288	100.0
1993	298	25.9	599	52.0	254	22.1	1,151	100.0

TABLE 4.08

ENDORSEMENT STATUS OF MOTORCYCLE OPERATORS INVOLVED IN FATAL CRASHES, 1984 - 1993

	Valid Endorsement*		Permit Only		Cancelled, Suspended, Revoked		No Endorsement		Total** For Year	
Year	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	50	73.5%	1	1.5%	3	4.4%	14	20.6%	68	100.0%
1985	50	64.9	5	6.5	7	9.1	15	19.5	77	100.0
1986	41	64.1	1	1.6	7	10.9	15	23.4	64	100.0
1987	33	64.7	1	2.0	10	19.6	7	13.7	51	100.0
1988	32	55.2	3	5.2	9	15.5	13	22.4	58	100.0
1989	22	56.4	0	0.0	8	20.5	9	23.1	39	100.0
1990	25	53.2	2	4.3	9	19.1	11	23.4	47	100.0
1991	28	71.8	1	2.6	4	10.3	5	12.8	39	100.0
1992	17	60.7	0	0.0	5	17.9	4	14.3	28	100.0
1993	21	65.6	1	3.1	4	12.5	4	12.5	32	100.0

* A valid endorsement means that the driver's license has been "endorsed" to permit operation of a motorcycle.
** Rows may not add to total due to the unknown status of some motorcycle operators.

TABLE 4.09

ALCOHOL USE BY MOTORCYCLE DRIVERS, 1984 - 1993

Year	Killed	Tested	Alcohol Concentration* (.00)	(.01 - .09)	(.10 or more)
1984	57	45	13 (29%)	9 (20%)	23 (51%)
1985	63	51	18 (35%)	8 (16%)	25 (49%)
1986	56	46	16 (35%)	5 (11%)	25 (54%)
1987	45	42	17 (40%)	3 (7%)	22 (52%)
1988	52	45	20 (44%)	8 (18%)	17 (38%)
1989	31	30	9 (30%)	3 (10%)	18 (60%)
1990	43	35	10 (29%)	5 (14%)	20 (57%)
1991	36	30	13 (43%)	3 (10%)	14 (47%)
1992	23	21	10 (48%)	0 (0%)	11 (52%)
1993	29	26	9 (35%)	3 (12%)	14 (54%)

*Percentages are based on those motorcycle drivers tested.

TABLE 4.10

1993 MOTORCYCLE DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

Age	Killed	Tested	Alcohol Concentration* (.01 - .09)	(.10 or more)	Alcohol Concentration .00	.01-.04	.05-.09	.10-.14	.15-.19	.20-.24	.25 & Over
14 & Younger	1	1	0	0	1	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0
20	1	1	0	0	1	0	0	0	0	0	0
Under 21	2	2	0	0	2	0	0	0	0	0	0
14 & Younger	1	1	0	0 (0%)	1	0	0	0	0	0	0
15 - 19	0	0	0	0	0	0	0	0	0	0	0
20 - 24	5	3	0	1 (33%)	2	0	0	1	0	0	0
25 - 29	4	4	1 (25%)	2 (50%)	1	0	1	0	2	0	0
30 - 34	6	6	1 (17%)	4 (67%)	1	1	0	1	1	2	0
35 - 39	6	5	0	4 (80%)	1	0	0	0	1	2	1
40 - 44	2	2	1 (50%)	1 (50%)	0	1	0	0	0	0	1
45 - 49	1	1	0	1 (100%)	0	0	0	0	0	1	0
50 - 54	4	4	0	1 (25%)	3	0	0	1	0	0	0
55 - 59	0	0	0	0	0	0	0	0	0	0	0
60 & Older	0	0	0	0	0	0	0	0	0	0	0
Total	29	25	3 (12%)	14 (54%)	9	2	1	3	4	5	2

* Percentages are based on those motorcycle drivers tested.

TABLE 4.11

CONTRIBUTING FACTORS IN 1993 MOTORCYCLE CRASHES

	Single Vehicle Crashes		*Multi-Vehicle Crashes*			
	Attributed to Motorcycle Drivers		**Attributed to Motorcycle Drivers**		**Attributed to Other Drivers**	
Contributing Factors	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Human Factors:						
Illegal/Unsafe Speed	183	29.6%	82	18.1%	18	2.7%
Driver Inattention/Distraction	70	11.3	89	19.6	142	21.3
Driver Inexperience	75	12.1	34	7.5	10	1.5
Physical Impairment	81	13.1	17	3.7	16	2.4
Improper/Unsafe Lane Use	18	2.9	21	4.6	36	5.4
Following Too Closely	8	1.3	45	9.9	29	4.3
Failure to Yield Right of Way	8	1.3	48	10.6	238	35.6
Improper Passing/Overtaking	5	0.8	23	5.1	9	1.3
Disregard for Traffic Control Device	2	0.3	20	4.4	29	4.3
Driving Left of Roadway Center--Not Passing	4	0.6	7	1.5	8	1.2
Vision Obscured	1	0.2	6	1.3	27	4.0
Improper Turn	2	0.3	11	2.4	44	6.6
Improper Parking/Starting/ Stopping	3	0.5	3	0.7	9	1.3
Unsafe Backing	0	0.0	0	0.0	15	2.2
Impeding Traffic	0	0.0	0	0.0	1	0.1
Improper or No Signal	0	0.0	0	0.0	5	0.7
Pedestrian Violation	0	0.0	0	0.0	5	0.7
Failure to Use Lights	0	0.0	2	0.4	2	0.3
Other Human Factor	16	2.6	5	1.1	5	0.7
Vehicular Factors:						
Skidding	47	7.6	14	3.1	0	0.0
Defective Equipment	13	2.1	5	1.1	1	0.1
Other Vehicular Factors	14	2.3	3	0.7	1	0.1
Miscellaneous Factors:						
Weather Conditions	11	1.8	2	0.4	0	0.0
Other	57	9.2	17	3.7	18	2.7
Total	618	100.0%	454	100.0%	668	100.0%
No Improper Driving	116		383		262	
Total Number Drivers	542		732		742	

Zero, one, or two contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. Bicyclists and pedestrians are included as other drivers in this table.

V: TRUCK CRASHES

This section summarizes data on crashes involving trucks. On the accident report form, trucks are identified as any of the following eight types of vehicles: (1) two-axle, six-tire single unit truck or stepvan, (2) three-or-more-axle single unit truck, (3) single-unit truck with trailer, (4) truck tractor with no trailer, (5) truck tractor with semi-trailer, (6) truck tractor with double trailers, (7) truck tractor with triple trailers, (8) heavy truck of other or unknown type. A crash involving any of these vehicles is classified as a truck crash. Pickup trucks and vans are not counted as trucks in this section.

Almost 5,000 crashes; 77 deaths

There were 4,931 truck crashes in 1993, including 63 fatal crashes, 1,268 non-fatal injury crashes, and 3,600 property damage crashes. Seventy-seven people died in the fatal crashes, and 1,764 people were injured in the fatal and non-fatal injury crashes. Of the people injured, 11% had severe injuries and 55% had minor injuries. There appears to be a trend over time in which the more serious injuries are declining. For example, in 1985, there were 16% severe injuries and 47% minor injuries. The people killed and injured are usually in vehicles other than the truck. Sixty of the 77 people killed were in cars, pickups, or vans, and two were pedestrians; the other 15 were in trucks. Among the injured, 74% were in cars, pickups, or vans.

Leading Factor: Driver Inattention

For each vehicle, reporting officers indicate zero, one, or two factors they believe contributed to the crash. Driver inattention or distraction was cited most often, representing 20% of all factors cited in connection with the trucks, and 21% of all factors cited in connection with the other vehicles. Other human factors cited frequently (and about equally for both truck and non-truck drivers) were: illegal or unsafe speed, failure to yield right of way, and improper or unsafe lane use. Vehicular factors (such as defective brakes) made up 11% of the factors cited for the trucks, and 6% of the factors cited for the other vehicles. Bad weather conditions were cited rather frequently, representing 9% of the factors for trucks, and 7% of the factors for other vehicles. Officers also report apparent physical condition of drivers. Only three-tenths of one percent of truck drivers and 2.5% of other vehicles drivers appeared to have been drinking alcohol or to have been under the influence of alcohol.

When and Where

The winter months of January, November, and December were slightly over-represented, with a combined 31% of the truck crashes. In contrast, the three lowest months of February, April, and May combined accounted for only 19% of the crashes. Truck crashes are strongly workday-related. Each of the weekdays had two to three times as many crashes as occurred on Saturdays and Sundays. The 11 hours from 7:00 AM to 6:00 PM accounted for 77% of the crashes. A third of the crashes occurred in rural areas of less than 1,000 population. Major highways (interstates, and state and federal trunk highways) accounted for 61% of the crashes, county state aid highways for 18%, and local streets for 17%.

Road and weather conditions

Though most crashes (62%) occurred on dry roads, road surfaces that had snow or slush or ice or packed snow accounted for 20% of truck crashes. Another 15% occurred on wet roads. Weather conditions were clear or cloudy in 76% of the crashes, and raining or snowing in 16%.

TABLE 5.01

TRUCK CRASH SUMMARY, 1985 - 1993

	1985	1986	1987	1988	1989	1990	1991	1992	1993
Total Crashes	**7,973**	**6,908**	**5,668**	**7,038**	**7,381**	**6,712**	**5,152**	**4,463**	**4,931**
Fatal Crashes	86	85	65	70	77	70	72	65	63
Persons Killed	101	100	71	78	94	83	85	84	77
Injury Crashes	1,941	1,674	1,443	1,729	1,784	1,652	1,250	1,213	1,268
Severe	337	266	232	282	247	225	137	167	148
Moderate	755	615	548	604	586	617	477	418	452
Minor	845	793	663	843	951	810	636	628	668
Persons Injured	2,798	2,371	2,033	2,444	2,411	2,390	1,762	1,721	1,764
Severe	447	347	291	362	293	285	179	222	198
Moderate	1,048	859	767	856	777	876	667	560	598
Minor	1,303	1,165	975	1,226	1,341	1,229	916	939	968
Property Damage Crashes	6,424	5,149	4,160	5,239	5,520	4,990	3,830	3,185	3,600

TABLE 5.02

PERSONS KILLED OR INJURED IN 1993 TRUCK CRASHES BY VEHICLE OCCUPIED

		Injured			
Vehicle Type	Killed	Severe	Moderate	Minor	Total
Automobile	45	127	341	581	1,049
Pickup Truck	12	18	65	77	160
Van	3	9	31	51	91
Police or Fire Department Vehicle	0	0	4	1	5
School Bus	0	1	11	5	17
Motorcycle	0	4	9	2	15
Hit and Run Vehicle	0	2	0	1	3
Two-Axle, Six-Tire Single Unit Truck or Stepvan	4	5	27	52	84
Three or More Axle Single Unit Truck	0	5	20	36	61
Single Unit Truck with Trailer	1	2	9	14	25
Truck Tractor with No Trailer	1	0	3	9	12
Truck Tractor with Semi Trailer	8	21	60	109	190
Truck Tractor with Twin Trailers	0	0	1	4	5
Heavy Truck--Other or Unknown Type	1	0	5	6	11
Other or Unknown Vehicle Type	0	2	3	12	17
Bicycle	0	1	2	3	6
Pedestrian	2	1	7	5	13
Total	77	198	598	968	1,764

TABLE 5.03

CONTRIBUTING FACTORS IN 1993 TRUCK CRASHES

Contributing Factors	Attributed to Truck Vehicles Number	Percent	Attributed to Non-Truck Vehicles Number	Percent
Human Factors				
Driver Inattention/Distraction	763	19.5%	633	20.8%
Illegal or Unsafe Speed	368	9.4	367	12.0
Failure to Yield Right of Way	311	7.9	370	12.1
Improper or Unsafe Lane Use	295	7.5	273	9.0
Following Too Closely	251	6.4	166	5.4
Improper Turn	191	4.9	76	2.5
Vision Obscured	159	4.1	72	2.4
Improper Passing or Overtaking	90	2.3	128	4.2
Disregard for Traffic Control Device	90	2.3	98	3.2
Unsafe Backing	166	4.2	18	0.6
Driver Inexperience	66	1.7	94	3.1
Physical Impairment	45	1.2	79	2.6
Improper Parking, Starting, or Stopping	67	1.7	54	1.8
Driving Left of Center (Not Passing)	45	1.2	75	2.5
Improper or No Signal	34	0.9	13	0.4
Impeding Traffic	11	0.3	9	0.3
Failure to Use Lights	8	0.2	3	0.1
Pedestrian Violation or Error	0	0.0	7	0.2
Use of Phone or CB Radio	1	0.0	4	0.1
Other Human Factors	40	1.0	32	1.0
Vehicular Factors				
Skidding	139	3.6	133	4.4
Defective Brakes	104	2.7	23	0.8
Oversize or Overweight Vehicle	37	0.9	3	0.1
Defective Tire	25	0.6	5	0.2
Defective Lights	20	0.5	6	0.2
Other Vehicular Factor	93	2.4	9	0.3
Miscellaneous Factors				
Weather	336	8.6	210	6.9
Other	158	4.0	88	2.9
Total Contributing Factors Cited	3,913	100.0%	3,048	100.0%
Vehicles for Which There Was "No Clear Contributing Factor"	2,166		2,110	
Total Number of Vehicles	5,123		4,379	

Zero, one, or two contributing factors may be associated with each vehicle. This may cause the sum of the factors cited to differ from the number of vehicles. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. Bicyclists and pedestrians are included in the "non-truck vehicles" columns in this table. Human factors with a frequency of less than one-tenth of one percent are merged into the category "other human factors."

TABLE 5.04

AGE OF TRUCK DRIVERS IN 1993 CRASHES

Driver Age	Truck or Truck Tractor	Truck with Semi-Trailer	Truck with Twin Trailer	Truck with Other Trailer	Total
15 - 19	48	9	0	17	74
20 - 24	272	171	2	45	490
25 - 29	342	312	1	52	707
30 - 34	382	393	13	66	854
35 - 39	294	365	1	51	711
40 - 44	210	306	3	35	554
45 - 49	155	281	9	35	480
50 - 54	138	224	7	25	394
55 - 59	81	145	5	22	253
60 - 64	60	85	2	15	162
65 & Older	51	45	1	13	110
Not Stated	106	38	0	8	152
Total*	2,139	2,374	44	384	4,941

* There were 5,123 trucks in crashes in 1993. However, 167 of these were parked vehicles. The driver could not be identified for an additional 15 of these trucks. This table tabulates the ages of drivers for the remaining 4,941 trucks where it was possible to identify a driver.

TABLE 5.05

DRIVERS IN 1993 TRUCK CRASHES BY PHYSICAL CONDITION*

	Truck Driver		Other Driver	
Physical Condition	Number	Percent	Number	Percent
Normal	4,201	85.0%	3,325	80.8%
Under the Influence	9	0.2	61	1.5
Had Been Drinking	7	0.1	43	1.0
Had Been Using Drugs	0	0.0	2	0.0
Asleep	16	0.3	15	0.4
Fatigued	17	0.3	8	0.2
Ill	5	0.1	3	0.1
Other	8	0.2	13	0.3
Unknown	678	13.7	647	15.7
Total **	4,941	100.0%	4,117	100.0%

* As noted by police officer on accident report.

** There were 5,123 trucks in crashes in 1993. However, 167 were parked. The driver could not be identified for an additional 15. This table tabulates the apparent physical condition of drivers for the remaining 4,941 where it was possible to identify a driver. Also, there were 4,356 non-truck motor vehicles in 1993 truck crashes. However, 187 of them were parked, and there were 52 more for which a driver could not be identified, leaving 4,117 for which an apparent physical condition was recorded.

TABLE 5.06

1993 TRUCK CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	51	1,014	2,588	3,653	64	1,481
Parked Motor Vehicle	1	36	211	248	1	42
Railroad Train	1	5	6	12	2	6
Bicycle	0	6	2	8	0	6
Pedestrian	2	11	0	13	2	11
Deer	0	3	63	66	0	3
Other Animal	0	3	22	25	0	3
Fixed Object	2	59	308	369	2	69
Falling Object	0	9	36	45	0	12
Non-Collision:						
Overturn	4	93	151	248	4	96
Fire or Explosion	1	2	14	17	1	5
Other	1	27	199	227	1	30
Total	63	1,268	3,600	4,931	77	1,764

TABLE 5.07

1993 TRUCK CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
January	3	119	383	505	4	152
February	1	94	216	311	2	133
March	7	93	276	376	7	126
April	2	72	203	277	3	105
May	4	83	262	349	5	122
June	4	101	310	415	5	142
July	6	105	335	446	7	145
August	8	118	294	420	8	176
September	6	114	278	398	7	157
October	11	115	299	425	18	163
November	8	140	389	537	8	195
December	3	114	355	472	3	148
Total	63	1,268	3,600	4,931	77	1,764

TABLE 5.08

1993 TRUCK CRASHES BY TIME AND DAY

Time of Day	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight - 2:59 AM	157	10	20	18	23	28	37	21
3:00 - 5:59 AM	149	6	31	25	26	23	27	11
6:00 - 8:59 AM	724	8	141	137	143	143	121	31
9:00 - 11:59 AM	1,043	20	191	185	190	197	183	77
Noon - 2:59 PM	1,136	32	202	190	233	190	221	68
3:00 - 5:59 PM	1,009	40	167	160	235	174	192	41
6:00 - 8:59 PM	360	20	48	70	83	54	59	26
9:00 - 11:59 PM	237	24	30	45	45	43	34	16
Unknown	116	5	17	26	23	19	18	8
Total	4,931	165	847	856	1,001	871	892	299

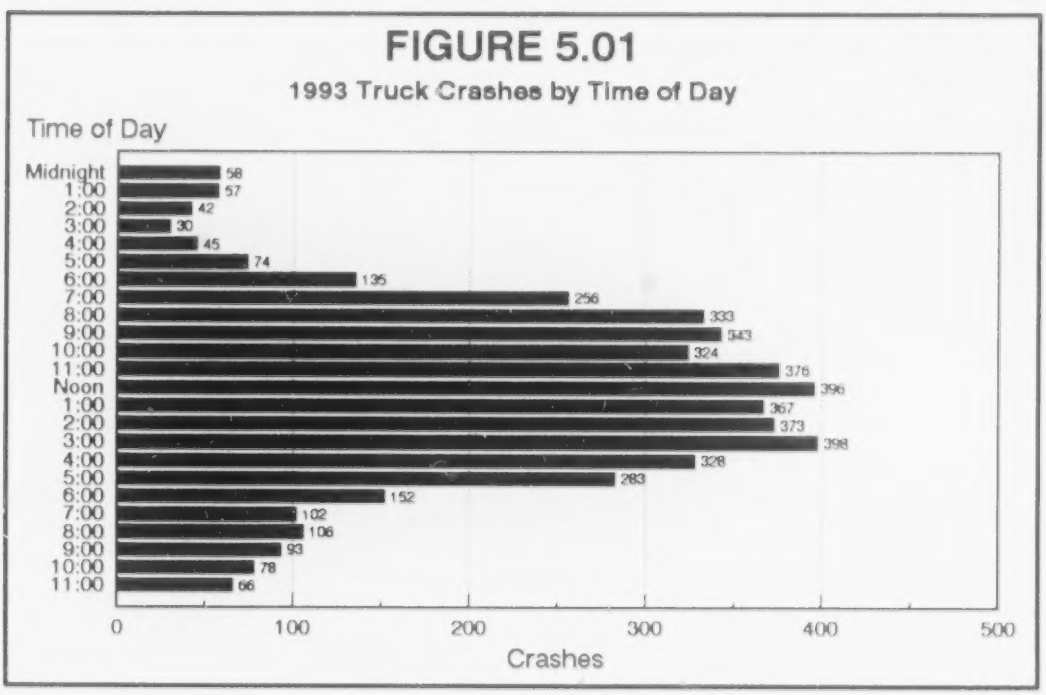


TABLE 5.09

1993 TRUCK CRASHES BY ROAD SURFACE CONDITION

Road Surface Condition	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Dry	45	801	2,196	3,042	58	1,112
Wet	8	211	529	748	8	315
Snow or Slush	2	68	216	286	2	90
Ice or Packed Snow	7	169	538	714	8	219
Other	1	13	33	47	1	22
Unknown	0	6	88	94	0	6
Total	63	1,268	3,600	4,931	77	1,764

TABLE 5.10

1993 TRUCK CRASHES BY WEATHER CONDITION

Weather Condition	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Clear	34	620	1,717	2,371	42	861
Cloudy	16	343	1,015	1,374	21	466
Rain	4	112	283	399	4	167
Snow	4	86	296	386	5	123
Sleet/Hail/Freezing Rain	1	26	93	120	1	34
Fog/Smog/Smoke	1	38	38	77	1	59
Blowing Sand/Dust/Snow	2	33	67	102	2	43
Severe Cross Winds	1	5	26	32	1	6
Other	0	0	4	4	0	0
Unknown	0	5	61	66	0	5
Total	63	1,268	3,600	4,931	77	1,764

TABLE 5.11

1993 TRUCK CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
100,000 & Over	1	172	618	791	1	246
50,000 - 99,999	1	100	332	433	1	130
25,000 - 49,999	4	159	459	622	5	225
10,000 - 24,999	3	155	583	741	4	215
5,000 - 9,999	2	86	236	324	2	112
2,500 - 4,999	2	49	163	214	2	71
1,000 - 2,499	4	47	100	151	4	65
Under 1,000	46	500	1,109	1,655	58	700
Total	63	1,268	3,600	4,931	77	1,764

TABLE 5.12

1993 TRUCK CRASHES BY TYPE OF ROADWAY

Roadway Type	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Interstate Highway	3	232	710	945	3	294
US Trunk Highway	16	276	644	936	19	403
State Trunk Highway	27	312	794	1,133	35	442
County State-Aid Highway	12	257	621	890	14	371
County Road	1	17	49	67	1	22
Township Road	3	16	43	62	4	27
Local Street	1	155	706	862	1	202
Other Road	0	3	33	36	0	3
Total	63	1,268	3,600	4,931	77	1,764

VI: PEDESTRIAN CRASHES

Crashes reported in this section deal with motor vehicle crashes that injure or kill pedestrians. Prior to 1984, a crash was defined as a pedestrian crash only if the pedestrian was the first "object" struck by a motor vehicle. Beginning in 1984, any crash where a pedestrian is struck and injured is defined as a pedestrian crash.

Crashes down
There were 1,383 crashes in which a pedestrian was killed or injured in 1993. This is 3% fewer than in 1992, and a 7% decrease from the average of the prior five years. There were 1,390 pedestrians injured in these crashes, which is 34 fewer than last year.

One more death than record low
There were 47 pedestrians killed in 1993. This is one more than last year's record low, and a 24% decrease from the average of the prior five years.

65 and older more likely to be fatal
Pedestrians under the age of 25 made up 48% of the injuries and 19% of the fatalities. Pedestrians over 65, on the other hand, made up only 8% of the injuries, but 34% of the fatalities. Of injuries sustained by pedestrians, 21% were severe, 34% were moderate and 45% were minor. Fifty-five percent of the pedestrians injured were male. Of pedestrians who were killed, two-thirds were male, one-third female. The age group of 10 to 14 year olds had the highest number of injuries.

September is highest month for crashes
September had the highest number of crashes (140), February the lowest (77). March had the highest number of injuries, followed by September. September and December had the highest number of fatalities with eight each.

Rural areas over-represented in fatalities
Areas of under 1,000 population accounted for 5% of pedestrian crashes, but 32% of the pedestrian fatalities. Areas of over 100,000 population, on the other hand, accounted for 48% of pedestrian injuries and 23% of fatalities.

Afternoon and late night hours deadly
The hours from 3:00 to 6:00 PM accounted for 30% of the total and 30% of the fatal crashes involving pedestrians. The hours from Midnight to 3:00 AM accounted for only 7% of the total crashes, but 20% of the fatal crashes. Of the days of the week, Friday had the most crashes (263) -- almost twice as many as Sunday (143), which had the least.

Vehicles going straight
Sixty percent of motor vehicles were going straight prior to striking a pedestrian. Another 10% were turning left.

Pedestrians crossing without crosswalks
The most common action on the part of a pedestrian before being struck was crossing the road without a crosswalk or signal. This accounted for 27% of pedestrians injured and 43% of the pedestrians killed. However, 14% of pedestrians injured and 2% of those killed were crossing with the signal when they were struck.

Contributing factors
The contributing factors most often reported for motor vehicle drivers were driver inattention/ distraction and failure to yield the right of way. However, 41% of the motor vehicle drivers were found by the investigating officer to have committed "no improper driving."

Pedestrians above .10
Of the 47 pedestrians killed in motor vehicle crashes, only 17 (36%) were tested for alcohol concentrations. Of those tested, 53% had not been drinking, but the 47% who had been drinking were all at or above .10 concentration. This is the level at which it is illegal to operate a motor vehicle.

TABLE 6.01

PEDESTRIAN CRASH SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Pedestrian Crashes*	1,690	1,845	1,610	1,556	1,575	1,591	1,512	1,338	1,420	1,383
Pedestrians Killed	55	65	71	62	69	67	65	61	46	47
Pedestrians Injured	1,682	1,837	1,570	1,533	1,566	1,578	1,499	1,339	1,424	1,390

*Prior to 1984 a crash was defined as a pedestrian crash only if a pedestrian was the first "object" struck by a motor vehicle. Beginning in 1984, any crash where a pedestrian is struck and injured is defined as a pedestrian crash.

TABLE 6.02

PEDESTRIANS KILLED OR INJURED BY AGE AND GENDER, 1993

Age	Killed			Injured											
				Severe			Moderate			Minor			Total		
Group	M	F	Total	M	F	Total*	M	F	Total*	M	F	Total*	M	F	Total*
0 - 4	0	2	2	3	6	9	13	11	24	17	9	27	33	26	60
5 - 9	0	2	2	24	10	34	55	21	76	47	25	72	126	56	182
10 - 14	0	0	0	20	16	37	37	31	70	41	42	85	98	89	192
15 - 19	1	1	2	7	14	21	27	14	42	31	29	61	65	57	124
20 - 24	2	1	3	17	7	24	21	19	40	32	14	46	70	40	110
25 - 29	5	0	5	5	7	12	11	18	29	33	10	44	49	35	85
30 - 34	4	0	4	9	7	16	16	12	28	26	16	42	51	35	86
35 - 39	2	1	3	14	3	17	19	10	29	19	21	41	52	34	87
40 - 44	2	1	3	10	7	18	15	12	27	23	8	32	48	27	77
45 - 49	4	0	4	5	6	11	8	8	16	9	17	27	22	31	54
50 - 54	1	0	1	10	4	14	5	2	7	7	8	15	22	14	36
55 - 59	0	1	1	8	6	14	0	1	1	5	6	11	13	13	26
60 - 64	0	1	1	5	2	7	5	6	11	1	5	6	11	13	24
65 - 69	2	0	2	0	4	4	2	5	7	2	1	3	4	10	14
70 - 74	2	2	4	4	12	16	5	5	10	1	2	5	10	19	31
75 - 79	3	2	5	5	5	10	2	4	6	3	4	7	10	13	23
80 - 84	2	1	3	5	6	11	3	7	10	4	5	9	12	18	30
85 & Older	2	0	2	1	1	2	9	3	12	1	4	5	11	8	19
Not Stated	0	0	0	8	5	13	8	15	26	37	39	91	53	59	130
Total	32	15	47	160	128	290	261	204	471	339	265	629	760	597	1,390

* Where columns do not add across, gender was not stated on accident report.

FIGURE 6.01

Pedestrian Fatalities by Age

1984 - 1993 Combined

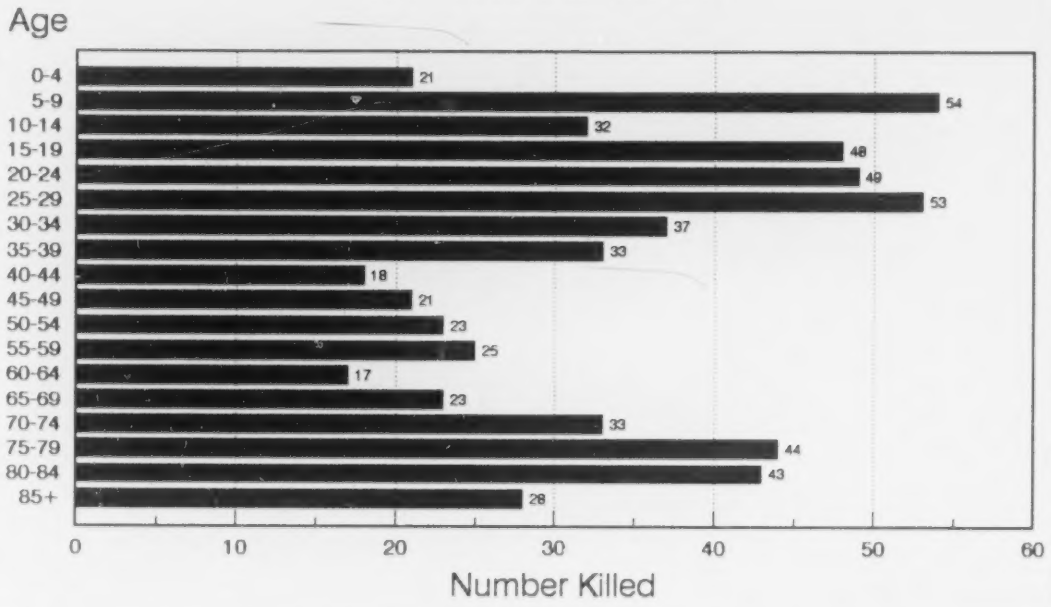


FIGURE 6.02

Pedestrians Killed and Injured

by Age and Gender, 1993

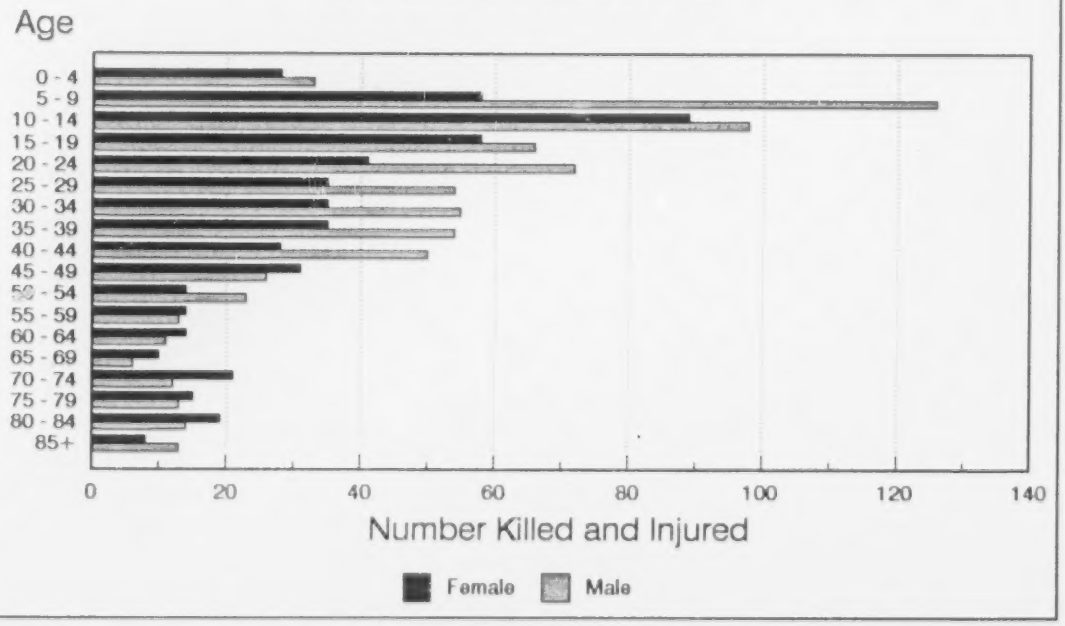


TABLE 6.03

1993 PEDESTRIAN CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Total Crashes	Pedestrians Killed	Pedestrians Injured
January	2	103	105	2	111
February	2	75	77	2	82
March	2	127	129	2	134
April	3	105	108	3	106
May	2	101	103	2	101
June	2	115	117	2	122
July	4	116	120	4	118
August	3	114	117	5	121
September	7	133	140	8	132
October	4	121	125	4	122
November	5	112	117	5	117
December	8	117	125	8	124
Total	44	1,339	1,383	47	1,390

TABLE 6.04

1993 PEDESTRIAN CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Total Crashes	Pedestrians Killed	Pedestrians Injured
100,000 and Over	11	644	655	11	664
50,000 - 99,999	4	114	118	4	116
25,000 - 49,999	7	151	158	7	157
10,000 - 24,999	3	163	16o	3	174
5,000 - 9,999	4	63	67	5	66
2,500 - 4,999	1	32	33	1	33
1,000 - 2,499	1	30	31	1	29
Under 1,000	13	60	73	15	67
Unknown	0	82	82	0	84
Total	44	1,339	1,383	47	1,390

TABLE 6.05

1993 PEDESTRIAN CRASHES BY TIME AND DAY

Time of Day	Fatal Crashes	Total Crashes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight 2:59 AM	9	91	25	5	7	4	11	14	25
3:00 - 5:59 AM	1	13	4	2	0	1	1	1	4
6:00 - 8:59 AM	3	125	2	12	23	35	18	27	8
9:00 - 11:59 AM	1	129	7	22	18	25	15	22	20
Noon - 2:59 PM	6	225	20	26	36	38	26	45	34
3:00 - 5:59 PM	13	416	42	61	57	68	64	77	47
6:00 - 8:59 PM	6	235	24	23	46	35	27	44	36
9:00 - 11:59 PM	5	125	16	14	16	17	15	27	20
Unknown	0	24	3	3	2	0	6	6	4
Total	44	1,383	143	168	205	223	183	263	198

FIGURE 6.03

1993 Pedestrian Crashes by Time of Day

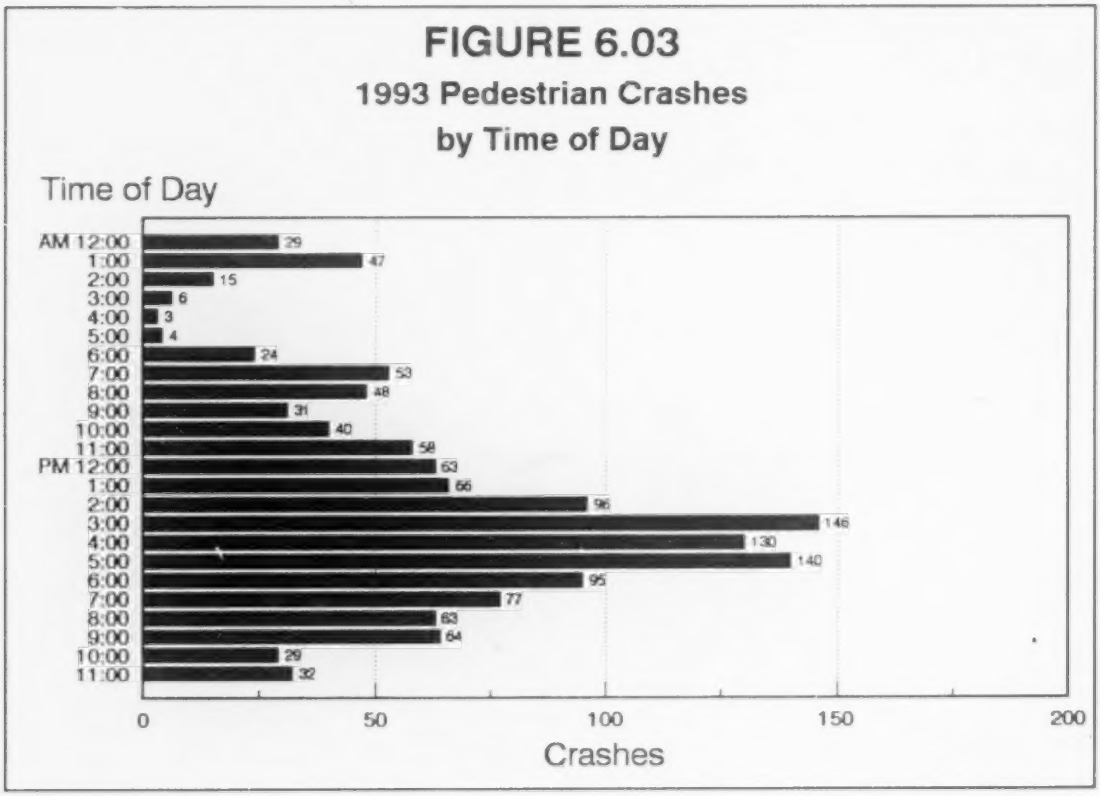


TABLE 6.06

PRIOR ACTION OF VEHICLES IN 1993 PEDESTRIAN CRASHES

Action	Vehicles in Fatal Crashes	Vehicles in Injury Crashes	Vehicles in Total Crashes*
Going Straight	37	847	884
Wrong Way Opposing Traffic	0	12	12
Turning Right on Red	0	34	34
Turning Left on Red	0	3	3
Turning Right	1	89	90
Turning Left	0	151	151
Making U Turn	0	3	3
Starting From Parked	1	23	24
Starting in Traffic	0	21	21
Slowing in Traffic	0	23	23
Parking	1	5	6
Avoiding Object in Road	1	18	19
Changing Lanes	1	4	5
Passing	0	8	8
Backing	1	58	59
All Others	2	80	82
Unknown	6	48	54
Total	51	1,427	1,478

* The number of vehicles in total crashes exceeds the number of crashes because some crashes involved more than one vehicle.

TABLE 6.07

PRIOR ACTION OF PEDESTRIANS KILLED OR INJURED IN 1993

Action	Pedestrians Killed		Pedestrians Injured	
	Number	Percent	Number	Percent
Crossing Road (No Crosswalk and No Signal)	20	42.6%	372	26.8%
Crossing Against Signal	2	4.3	104	7.5
Crossing With Signal	1	2.1	198	14.2
Crossing In Crosswalk (No Signal)	1	2.1	112	8.1
Walking In Road With Traffic	4	8.5	88	6.3
Walking In Road Against Traffic	2	4.3	102	7.3
Standing In Road	4	8.5	86	6.2
Emerging From Front/Behind Parked Car	1	2.1	74	5.3
Child Getting On/Off School Bus	1	2.1	6	0.4
Pushing/Working On Vehicle	3	6.4	6	0.4
Working In Road	0	0.0	10	0.7
Getting On/Off Vehicle	0	0.0	22	1.6
Playing In Road	0	0.0	18	1.3
Not In Road	1	2.1	47	3.4
Other Pedestrian Action	4	8.5	50	3.6
Unknown	3	6.4	95	6.8
Total	47	100.0%	1,390	100.0%

* Percent totals may not sum to 100% due to rounding.

TABLE 6.08

CONTRIBUTING FACTORS IN 1993 PEDESTRIAN CRASHES

Contributing Factors	Attributed to Motor Vehicle Drivers Number	Percent
Human factors		
Driver Inattention/Distraction	299	26.7%
Failure to Yield Right of Way	254	22.7
Vision Obscured	90	8.0
Illegal or Unsafe Speed	82	7.3
Physical Impairment	38	3.4
Improper/Unsafe Lane Use	33	2.9
Driver Inexperience	23	2.1
Unsafe Backing	37	3.3
Disregard for Traffic Control Device	37	3.3
Improper Turn	18	1.6
Improper Parking/Stopping/Starting	29	2.6
Driving Left of Roadway Center - Not Passing	5	0.4
Improper Passing	8	0.7
Following Too Closely	9	0.8
Failure to Use Lights	3	0.3
Impeding Traffic	1	0.1
Improper or No Signal	1	0.1
Other Human Factors	24	2.1
Vehicular Factors		
Defective Equipment	5	0.4
Skidding	31	2.8
Other Vehicular Factors	5	0.4
Miscellaneous Factors		
Weather Conditions	40	3.6
Other	48	4.3
Total Contributing Factors Cited	1,120	100.0%
No Improper Actions:	605	
Total Number of Drivers	1,478	

Zero, one, or two contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding.

TABLE 6.09

PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION, 1984 - 1993

Year	Killed	Tested	Alcohol Concentration* (.00)	(.01 - .09)	(.10 or more)
1984	55	38	18 (47%)	20 (53%)	18 (47%)
1985	65	37	22 (59%)	15 (41%)	10 (27%)
1986	71	49	21 (43%)	28 (57%)	27 (55%)
1987	62	42	23 (55%)	19 (45%)	17 (40%)
1988	69	47	25 (53%)	22 (47%)	20 (43%)
1989	67	42	26 (62%)	16 (38%)	12 (29%)
1990	65	41	25 (61%)	16 (39%)	15 (37%)
1991	61	32	20 (63%)	12 (38%)	11 (34%)
1992	46	24	17 (71%)	7 (29%)	6 (25%)
1993	47	17	9 (53%)	0 (0%)	8 (47%)

* The percentage figures shown are based on the number of fatally injured pedestrians who were tested for alcohol concentration. (The law requires testing of all drivers and pedestrians, 16 years of age or older, who die within four hours as a result of a motor vehicle crash.)

TABLE 6.10

1993 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

Age Group	Killed	Tested	Alcohol Concentration (.00)	(.01 - .09)	(.10 or more)
14 & Younger	4	2	2	0	0
15 - 19	2	0	0	0	0
20 - 24	3	0	0	0	0
25 - 29	5	3	1	0	2
30 - 34	4	2	1	0	1
35 - 39	3	2	0	0	2
40 - 44	3	1	1	0	0
45 - 49	4	1	0	0	1
50 - 54	1	1	0	0	1
55 - 59	1	1	1	0	0
60 - 64	1	0	0	0	0
65 - 69	2	1	0	0	1
70 - 74	4	0	0	0	0
75 - 79	5	1	1	0	0
80 - 84	3	0	0	0	0
85 & Older	2	2	2	0	0
Total	47	17	9	0	8

TABLE 6.11

1993 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TIME OF DAY

Time of Day	Killed	Tested	Alcohol Concentration (.00)	(.01 - .09)	(.10 or more)
Midnight - 2:59 AM	11	4	1	0	3
3:00 - 5:59 AM	1	1	0	0	1
6:00 - 8:59 AM	3	1	1	0	0
9:00 - 11:59 AM	1	1	1	0	0
Noon - 2:59 PM	6	0	0	0	0
3:00 - 5:59 PM	13	6	5	0	1
6:00 - 8:59 PM	7	1	1	0	0
9:00 - 11:59 PM	5	3	0	0	3
Total	47	17	9	0	8

VII: BICYCLE CRASHES

Bicycles are subject to the same traffic laws as motor vehicles, but bicycle crashes are only reported to the Minnesota Department of Public Safety if they involve collision with a motor vehicle.

Data collected before 1984 counted bicycles only if they were the first "object" struck by the motor vehicle. Beginning in 1984, all motor vehicle crashes that involved a collision with a bicycle were reported as bicycle crashes. The number of bicycle crashes reported here rose slightly as a result.

Crashes, fatalities down from 1992
There were 1,321 crashes that involved a bicycle in 1993. This is 22 fewer crashes than last year, and a decrease of 2% from the prior five year average. Nine bicyclists were killed (two fewer than 1992) and 1,240 were injured.

Most crashes involve injury
Unlike crashes as whole, the majority of which involve only property damage (no injuries), bicycle crashes almost always involve an injury. Less than 1% of the crashes involved a death, but 93% of the crashes involved a non-fatal injury. Only 6% were property damage crashes.

Summer high for crashes
The months of June, July, and August (combined) accounted for 56% of the crashes and 56% of the injuries, as well as seven of the nine fatalities. August alone accounted for three fatalities and 20% of the crashes and injuries. In contrast, the months of January, February, March, November, and December (combined) accounted for only 6% of the crashes, 6% of the injuries, and no fatalities.

Afternoon hours most crash involved
One-third of the crashes happened between 3:00 and 6:00 PM. Only five crashes (0.4%) happened between 3:00 and 6:00 AM. Of the days of the week, Tuesday had the most crashes, with 245 (19%). Saturday and Sunday combined accounted for 20% of crashes.

Most crashes in urban areas
Thirty-eight percent of the crashes and injuries occurred in areas of over 100,000 population. The second most involved areas were areas of 10,000 to 24,999 population. Only 9% of injuries happened in areas of under 5,000 population, but three of the nine bicyclists killed were in these areas.

Most causalities under 25 years old
Bicyclists under the age of 25 accounted for 70% of the injuries and six of the nine fatalities. The age group of 10-14 year olds sustained the highest number of injuries (28% of the total) and five of the nine fatalities.

More injured are male
Five of the bicyclists killed were male and four were female. The picture changes with injuries. At all levels of non-fatal severity, males made up over 70% of the injuries. Of the 1,240 bicyclists injured, 11% were severe, 50% were moderate, and 39% were minor.

Bicyclists crossing road
Bicyclists were most often riding across the road when struck by motor vehicles. They were next most likely to have been riding with traffic when struck. This is not surprising since bicyclists are required to ride with traffic.

Top two factors: inattention and failure to yield
The two factors cited most frequently as contributing to the crash for both the bicyclist and the motor vehicle driver were driver inattention/distraction and failure to yield the right of way. Police were more likely to have noted a contributing factor for bicyclists than for motor vehicle drivers. Officers showed "no improper driving" for 48% of the motor vehicle drivers but only 25% of bicyclists.

TABLE 7.01

BICYCLE CRASH SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Bicycle Crashes	1,282	1,375	1,367	1,574	1,448	1,392	1,357	1,208	1,343	1,321
Bicyclists Killed	15	10	12	15	16	10	8	8	11	9
Bicyclists Injured	1,258	1,342	1,309	1,452	1,401	1,353	1,327	1,157	1,249	1,240

TABLE 7.02

1993 BICYCLE CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Bicyclists Killed	Bicyclists Injured
January	0	4	1	5	0	4
February	0	8	0	8	0	8
March	0	24	2	26	0	22
April	0	84	5	89	0	84
May	0	152	7	159	0	154
June	1	228	16	245	1	230
July	3	212	13	228	3	215
August	3	245	20	268	3	246
September	1	153	10	164	1	155
October	1	86	4	91	1	87
November	0	27	3	30	0	27
December	0	8	0	8	0	8
Total	9	1,231	81	1,321	9	1,240

FIGURE 7.01
1993 Bicycle Crashes by Time of Day

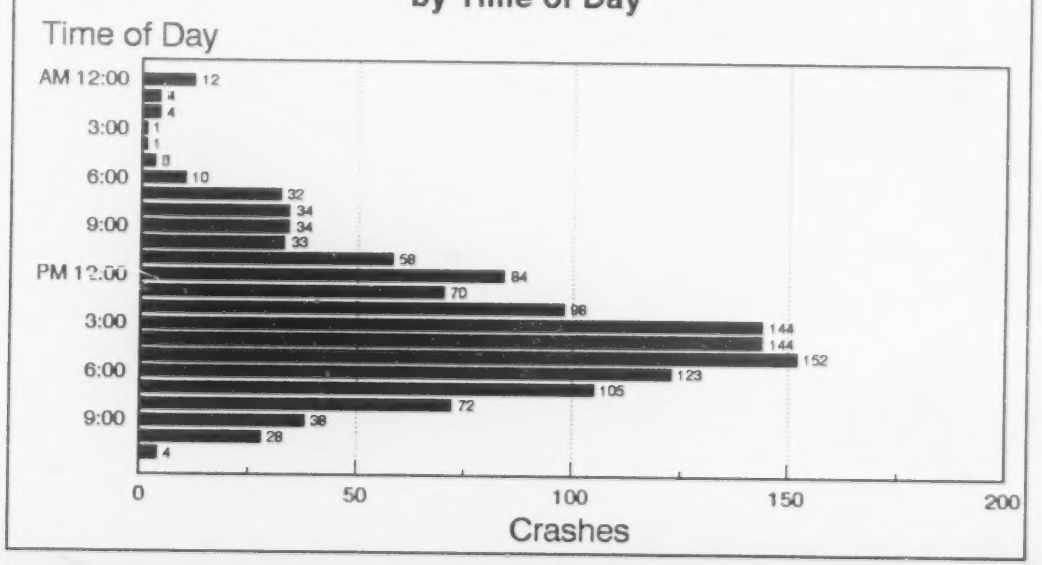


TABLE 7.03

1993 BICYCLE CRASHES BY TIME AND DAY

Time of Day	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight - 2:59 AM	20	4	0	3	2	1	4	6
3:00 - 5:59 AM	5	0	3	0	0	0	2	0
6:00 - 8:59 AM	76	3	15	23	11	8	11	5
9:00 - 11:59 AM	125	9	22	20	17	17	18	22
Noon - 2:59 PM	252	25	34	45	41	28	43	36
3:00 - 5:59 PM	440	38	57	84	74	77	73	37
6:00 - 8:59 PM	300	32	40	52	42	55	53	26
9:00 - 11:59 PM	70	4	12	12	14	13	7	8
Unknown	33	2	3	6	6	5	6	5
Total	1,321	117	186	245	207	204	217	145

TABLE 7.04

1993 BICYCLE CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Bicyclists Killed	Bicyclists Injured
100,000 and Over	1	462	44	507	1	465
50,000 - 99,999	0	101	4	105	0	103
25,000 - 49,999	0	190	12	202	0	189
10,000 - 24,999	3	237	9	249	3	239
5,000 - 9,999	1	62	3	66	1	62
2,500 - 4,999	1	30	0	31	1	30
1,000 - 2,499	0	30	2	32	0	30
Under 1,000	2	46	2	50	2	48
Unknown	1	73	5	79	1	74
Total	9	1,231	81	1,321	9	1,240

FIGURE 7.02
Bicyclists Killed and Injured by Age and Gender, 1993

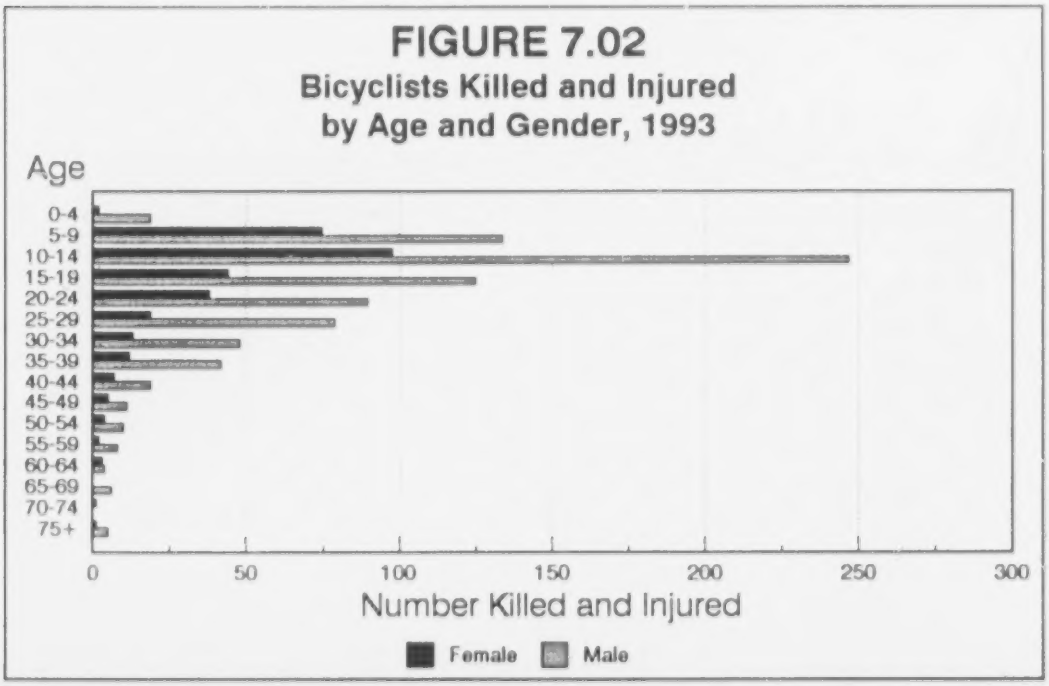


TABLE 7.05

BICYCLISTS KILLED OR INJURED BY AGE AND GENDER, 1993

	Killed			Injured											
				Severe			Moderate			Minor			Total		
Age Group	M	F	Total	M	F	Total	M	F	Total*	M	F	Total*	M	F	Total*
0 - 4	0	1	1	4	0	4	6	1	7	9	0	9	19	1	20
5 - 9	0	0	0	24	8	32	66	35	101	44	32	76	134	75	209
10 - 14	3	2	5	21	12	33	141	47	190	82	37	120	244	96	343
15 - 19	0	0	0	18	3	21	71	26	97	36	15	51	125	44	169
20 - 24	0	0	0	9	4	13	46	24	70	35	10	45	90	38	128
25 - 29	2	0	2	10	2	12	33	9	42	34	8	43	77	19	97
30 - 34	0	1	1	4	1	5	22	5	27	22	6	28	48	12	60
35 - 39	0	0	0	2	0	2	21	4	25	19	8	27	42	12	54
40 - 44	0	0	0	3	0	3	5	5	10	11	2	13	19	7	26
45 - 49	0	0	0	2	0	2	4	3	7	5	2	7	11	5	16
50 - 54	0	0	0	2	1	3	3	3	6	5	0	5	10	4	14
55 - 59	0	0	0	2	0	2	4	0	4	2	2	4	8	2	10
60 - 64	0	0	0	0	0	0	1	3	4	3	0	3	4	3	7
65 - 69	0	0	0	2	0	2	2	0	3	2	0	2	6	0	7
70 - 74	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1
75 & Older	0	0	0	0	0	0	3	1	4	2	0	2	5	1	6
Not Stated	0	0	0	6	0	6	15	5	21	35	5	46	56	10	73
Total	5	4	9	109	32	141	443	171	618	346	127	481	898	330	1,240

* Where columns do not add across to total, gender was not stated on the accident report.

TABLE 7.06

PRIOR ACTION OF BICYCLISTS INVOLVED IN 1993 CRASHES

Prior Action	Bicyclists In Fatal Crashes	Bicyclists In Injury Crashes	Bicyclists In Property Damage Crashes	Bicyclists In All Crashes*
Riding With Traffic	3	288	20	311
Riding Against Traffic	1	140	12	153
Making Left Turn	1	49	5	55
Making Right Turn	1	15	0	16
Making U Turn	0	6	0	6
Riding Across Road	3	449	20	472
Slowing, Starting, Stopping	0	34	4	38
Other/Unknown	0	261	21	282
Total	9	1,242	82	1,333

* The total number of bicyclist actions exceeds the number of bicycle crashes because some crashes involved more than one bicycle.

TABLE 7.07

CONTRIBUTING FACTORS IN 1993 BICYCLE CRASHES

Contributing Factors	Attributed to Bicyclists		Attributed to Motor Vehicle Drivers	
	Number	Percent	Number	Percent
Human Factors				
Driver Inattention/Distraction	230	21.6%	275	32.3%
Failure to Yield Right of Way	207	19.4	256	30.0
Improper/Unsafe Lane Use	115	10.8	24	2.8
Disregard for Traffic Control Device	106	10.0	26	3.1
Driver Inexperience	80	7.5	17	2.0
Vision Obscured	34	3.2	85	10.0
Illegal/Unsafe Speed	17	1.6	26	3.1
Improper Turn	29	2.7	31	3.6
Driving Left of Roadway Center--Not Passing	33	3.1	5	0.6
Failure to Use Lights	31	2.9	1	0.1
Physical Impairment	16	1.5	7	0.8
Improper Parking/ Starting/Stopping	7	0.7	15	1.8
Improper Passing/Overtaking	5	0.5	17	2.0
Impeding Traffic	7	0.7	2	0.2
Following Too Closely	2	0.2	5	0.6
Improper or No Signal	3	0.3	4	0.5
Using Phone/CB/Radio	2	0.2	0	0.0
Unsafe Backing	1	0.1	7	0.8
Other Human Factors	26	2.4	9	1.1
Vehicular Factors				
Defective Equipment	37	3.5	3	0.4
Skidding	2	0.2	6	0.7
Other Vehicular Factors	5	0.5	2	0.2
Miscellaneous Factors				
Weather Conditions	10	0.9	7	0.8
Other	60	5.6	22	2.6
Total	1,065	100.0%	852	100.0%
No Improper Driving	339		639	
Total Number of Bicyclists/Drivers	1,333		1,334	

Zero, one, or two contributing factors may be attributed to a single driver or bicyclist. This may cause the sum of the factors cited to differ from the number of drivers or bicyclists. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding.

VIII: SCHOOL BUS CRASHES

School bus travel remains remarkably safe in Minnesota. For the past ten years, the number of fatalities in school bus crashes has ranged from 1 to 6 per year. However, because school buses may carry many passengers, a small number of crashes may involve a large number of injuries.

Crashes at new high
There was a record high number of crashes involving school buses in 1993. Although there were 894 crashes, 76% of the crashes involved no injuries and only three people -- none of whom was on the school bus -- were killed. There were also 432 people injured in these crashes; this is seven more people than were injured in 1992.

Three killed
Two of the three fatalities were drivers of cars that collided with a school bus. Both were 16 years old. The third person killed was a six-year-old pedestrian who had just gotten off the bus.

Crashes revolved around school day
Not surprisingly, 66% of crashes, 71% of injuries, and all three fatalities occurred either between 6:00 and 9:00 AM or 3:00 and 6:00 PM. Only 3% of crashes occurred during the evening and night hours of 6:00 PM to 6:00 AM.

January had most crashes.
The month of January had the highest number of crashes (194) and injuries (76). Only 2% of crashes and injuries occurred in either July or August. One death happened in June, the other two in September.

Few injured were pedestrians
Only 3% of people injured in school bus crashes were pedestrians. The others were in the school bus (48%) or another vehicle (49%). Half of those injured were male; half were female.

Age varies by vehicle
Fifteen to nineteen year olds made up the largest age group injured in school bus crashes. They also made up the largest number of people injured who were in a vehicle other than a school bus. For those on the school bus, the age group with the most injuries was 10 -14 year olds; for pedestrians, 5 - 9 year olds.

Large and small population areas
Areas of over 100,000 population and areas of under 1,000 population each accounted for over a quarter of the injuries (27% and 26% respectfully). Two of the three fatalities were in areas of under 1,000 population.

Majority of injuries were minor
Of the 432 injuries sustained in school bus crashes, 62% were minor, 32% were moderate, and only 6% were severe.

Most crashes involved more than one vehicle
More than 80% of crashes involved a collision with another motor vehicle, another 11% were collisions with parked motor vehicles. Seventy-eight percent of injuries happened in crashes involving collisions with another motor vehicle.

Most crashes uncontrolled
There was no traffic control device present for 42% of crashes, 53% of the injuries, and two of the three fatalities. A school bus stop arm or a school sign zone were present in only 2% of the crashes and 3% of the injuries.

Half of school bus drivers exhibited no improper driving
For 50% of school bus drivers and 35% of the other drivers in these crashes, the investigating officer showed "no improper driving" that contributed to the crash. The factor cited most often for both types of drivers was driver inattention/distraction. The second most frequent factor for school bus drivers was failure to yield the right of way. For other drivers it was illegal or unsafe speed.

TABLE 8.01

SCHOOL BUS CRASH SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Total Crashes	675	723	662	530	679	828	674	857	741	894
Fatal Crashes	3	4	3	6	3	4	5	4	1	3
Persons Killed	3	4	3	6	3	4	6	4	1	3
Injury Crashes	176	191	160	141	175	167	149	181	169	212
Persons Injured	340	366	265	244	359	281	329	383	425	432
Property Damage Crashes	496	528	499	383	501	657	520	672	571	679
School Buses Involved	686	729	667	534	684	834	680	867	756	909

TABLE 8.02

1993 SCHOOL BUS CRASHES BY TIME OF DAY

Time of Day	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Midnight - 2:59 AM	0	1	3	4	0	2
3:00 - 5:59 AM	0	1	1	2	0	5
6:00 - 8:59 AM	1	73	226	300	1	171
9:00 - 11:59 AM	0	24	83	107	0	42
Noon - 2:59 PM	0	30	113	143	0	59
3:00 - 5:59 PM	2	72	212	286	2	137
6:00 - 8:59 PM	0	2	14	16	0	2
9:00 - 11:59 PM	0	3	4	7	0	7
Unknown	0	6	23	29	0	7
Total	3	212	679	894	3	432

TABLE 8.03

1993 SCHOOL BUS CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
January	0	46	148	194	0	76
February	0	18	78	96	0	40
March	0	34	78	112	0	61
April	0	12	41	53	0	26
May	0	8	40	48	0	15
June	1	11	25	37	1	24
July	0	2	9	11	0	4
August	0	2	8	10	0	4
September	2	19	48	69	2	72
October	0	24	52	76	0	44
November	0	20	71	91	0	40
December	0	16	81	97	0	26
Total	3	212	679	894	3	432

TABLE 8.04

AGE AND GENDER OF PERSONS INJURED IN 1993 SCHOOL BUS CRASHES

Age Group	Total*	In Bus	Pedestrian	In Other Vehicle	Male	Female
0 - 4	9	1	1	7	4	5
5 - 9	52	41	4	7	30	22
10 - 14	79	71	0	8	43	35
15 - 19	88	35	1	52	45	40
20 - 24	24	7	0	17	14	10
25 - 29	28	2	3	23	14	14
30 - 34	23	3	1	19	10	13
35 - 39	24	7	0	17	12	12
40 - 44	18	5	0	13	4	14
45 - 54	22	5	0	17	9	13
55 - 64	19	7	0	12	11	8
65 & Older	18	2	1	15	8	10
Unknown	28	23	0	5	6	14
Total	432	209	11	212	210	210

* There were 12 cases where the gender of the person was not stated.

TABLE 8.05

PERSONS KILLED OR INJURED IN 1993 SCHOOL BUS CRASHES BY POPULATION OF AREA

Population of City or Township	Killed	Injured			
		Severe	Moderate	Minor	Total
100,000 and Over	0	3	35	78	116
50,000 - 99,999	1	2	10	16	28
25,000 - 49,999	0	6	17	30	53
10,000 - 24,999	0	8	10	37	55
5,000 - 9,999	0	2	4	21	27
2,500 - 4,999	0	0	0	1	1
1,000 - 2,499	0	2	1	2	5
Under 1,000	2	2	40	72	114
Unknown	0	0	23	10	33
Total	3	25	140	267	432

TABLE 8.06

1993 SCHOOL BUS CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	2	178	551	731	2	338
Parked Motor Vehicle	0	9	91	100	0	20
Bicycle	0	6	0	6	0	6
Pedestrian	1	10	0	11	1	12
Deer	0	0	5	5	0	0
Other Animal	0	0	3	3	0	0
Fixed Object	0	4	23	27	0	7
Non-collision:						
Overturn	0	3	0	3	0	47
Other	0	2	6	8	0	2
Total	3	212	679	894	3	432

TABLE 8.07

1993 SCHOOL BUS CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
Not Applicable	2	96	279	377	2	231
Traffic Signal	0	36	133	169	0	72
Overhead Flashers	0	1	10	11	0	1
Stop Sign--All Approaches	0	6	24	30	0	11
Other Stop Sign	0	49	130	179	0	71
Yield Sign	1	4	19	24	1	19
Officer/Flagperson/ School Patrol	0	1	1	2	0	2
School Bus Stop Arm	0	7	7	14	0	11
School Sign Zone	0	0	1	1	0	0
No Passing Zone	0	2	7	9	0	4
Railroad Crossing Device	0	2	7	9	0	2
Other	0	1	14	15	0	1
Unknown	0	7	47	54	0	7
Total	3	212	679	894	3	432

TABLE 8.08

CONTRIBUTING FACTORS IN 1993 SCHOOL BUS CRASHES

Contributing Factors	Attributed to School Bus Drivers Number	Attributed to School Bus Drivers Percent	Attributed to Drivers of Other Vehicles Number	Attributed to Drivers of Other Vehicles Percent
Human Factors				
Driver Inattention/Distraction	108	23.4%	127	17.8%
Failure to Yield Right of Way	83	18.0	78	10.9
Unsafe Backing	18	3.9	7	1.0
Illegal or Unsafe Speed	24	5.2	100	14.0
Failure to Use Lights	0	0.0	1	0.1
Following Too Closely	17	3.7	65	9.1
Improper Turn	27	5.8	20	2.8
Improper or Unsafe Lane Use	21	4.5	24	3.4
Vision Obscured	16	3.5	14	2.0
Disregard for Traffic Control Device	7	1.5	36	5.0
Improper Parking/Starting/ Stopping	9	1.9	11	1.5
Driver Inexperience	7	1.5	25	3.5
Improper Passing/Overtaking	4	0.9	8	1.1
Driving Left of Roadway Center--Not Passing	11	2.4	8	1.1
Improper or No Signal	1	0.2	1	0.1
Physical Impairment	1	0.2	1	0.1
Impeding Traffic	3	0.6	0	0.0
Pedestrian Violation	0	0.0	4	0.6
Other Human Factors	3	0.6	9	1.3
Vehicular Factors				
Skidding	34	7.4	64	9.0
Defective Equipment	5	1.1	5	0.7
Other Vehicular Factors	2	0.4	2	0.3
Miscellaneous Factors				
Weather Conditions	50	10.8	85	11.9
Other	11	2.4	20	2.8
Total	462	100.0%	715	100.0%
No Improper Driving	452		326	
Total Number of Drivers	909		926	

Zero, one, or two contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. Bicyclists and pedestrians are included as other drivers in this table.

IX: MOTOR VEHICLE / TRAIN CRASHES

Crashes reported in this section involve a motor vehicle and a train. Train collisions with pedestrians or bicyclists are not counted as traffic crashes for the purpose of this publication. Motor vehicle/train crashes are few in number but are more likely to be fatal; about one-half of 1% of all crashes statewide were fatal, but 9% of motor vehicle/train crashes were fatal in 1993.

Crashes, deaths up from 1992
There were 128 motor vehicle collisions with trains in 1993. This is 17 more crashes than last year, but is still a 7% decrease from the average of the prior five years. There were 15 fatalities (6 more than last year) and 63 people injured in these crashes.

October most involved month
October had the highest number of crashes (18), injuries (9), and fatalities (3). May and September also had 3 fatalities each. June had the lowest number of crashes and injuries.

One-fifth of crashes between 9 AM and Noon
Twenty percent of crashes occurred between the hours of 9:00 AM and Noon. Of the days of the week, Thursday had the most crashes (22), Sunday the least (11).

Railroad crossbuck signs
The most common traffic control device at crash sites was a railroad crossbuck sign. Thirty-six percent of crashes, 53% of the fatalities, and nearly half the injuries occurred where this was the traffic control device present.

15 - 29 age group injured
People between the ages of 15 and 29 made up 51% of those injured and 40% of those killed in motor vehicle/train crashes. Those aged 30 - 34 made up the single highest five year age group of fatalities, 27%. Of all people injured in motor vehicle/train crashes, 22% sustained severe injuries, 51% moderate injuries, and 27% minor injuries.

Fatal crashes tend to be rural
Crashes in areas of population under 1,000 accounted for 47% of the fatalities, 44% of the injuries, and 36% of crashes. It is also believed that many of the 18% of crashes where the population figure was unknown also occurred in rural areas.

Other vehicles not yielding to trains
The contributing factor cited most frequently in these crashes was failure to the yield the right of way on the part of the motor vehicle driver. The second most cited factor was driver inattention/distraction, and the third was disregard for traffic control device.

TABLE 9.01

MOTOR VEHICLE / TRAIN CRASH SUMMARY, 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Total Crashes	149	134	116	119	168	142	116	147	111	128
Fatal Crashes	7	8	5	4	9	11	13	10	7	11
Persons Killed	11	13	12	4	12	15	17	10	9	15
Injury Crashes	56	63	53	55	56	48	35	49	39	45
Persons Injured	73	87	66	74	70	75	67	70	54	63
Property Damage Crashes	86	63	58	60	103	83	68	88	65	72

TABLE 9.02

1993 MOTOR VEHICLE / TRAIN CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
January	1	5	9	15	2	8
February	0	3	6	9	0	5
March	1	4	8	13	1	5
April	0	4	2	6	0	5
May	1	3	1	5	3	3
June	0	1	2	3	0	1
July	1	3	7	11	1	3
August	0	5	7	12	0	7
September	3	2	5	10	3	3
October	2	7	9	18	3	9
November	2	3	10	15	2	8
December	0	5	6	11	0	6
Total	11	45	72	128	15	63

TABLE 9.03

1993 MOTOR VEHICLE / TRAIN CRASHES BY TIME AND DAY

Time of Day	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight - 2:59 AM	14	3	1	1	3	2	3	1
3:00 - 5:59 AM	11	0	0	4	2	1	1	3
6:00 - 8:59 AM	13	1	2	3	2	2	2	1
9:00 - 11:59 AM	25	1	5	2	2	7	3	5
Noon - 2:59 PM	16	1	5	4	3	1	0	2
3:00 - 5:59 PM	20	2	4	4	2	3	3	2
6:00 - 8:59 PM	14	2	4	2	0	2	2	2
9:00 - 11:59 PM	13	1	0	0	3	4	4	1
Unknown	2	0	0	0	2	0	0	0
Total	128	11	21	20	19	22	18	17

TABLE 9.04

1993 MOTOR VEHICLE / TRAIN CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
RR Crossbuck	6	20	20	46	8	31
RR Crossing Stop Sign	3	4	7	14	5	4
RR Flashing Lights	0	5	13	18	0	8
RR Overhead Flashers Plus Gate	0	1	4	5	0	1
RR Overhead Flashers	0	1	6	7	0	2
RR Crossing Gate	2	1	3	6	2	2
Stop Sign	0	3	10	13	0	3
Other	0	4	4	8	0	6
Not Applicable	0	6	5	11	0	6
Total	11	45	72	128	15	63

TABLE 9.05

AGE OF PERSONS KILLED OR INJURED IN 1993 MOTOR VEHICLE / TRAIN CRASHES

		Injured			
Age Group	Killed	Severe	Moderate	Minor	Total
0-4	0	0	0	0	0
5-9	1	0	0	0	0
10-14	1	0	0	1	1
15-19	2	2	6	3	11
20-24	2	3	6	2	11
25-29	2	3	4	3	10
30-34	4	3	3	1	7
35-39	0	0	3	2	5
40-44	1	1	2	1	4
45-49	0	0	2	2	4
50-54	0	1	3	0	4
55-59	0	0	0	0	0
60-69	1	1	2	1	4
70-79	1	0	0	1	1
80 & Older	0	0	0	0	0
Not Stated	0	0	1	0	1
Total	15	14	32	17	63

TABLE 9.06

1993 MOTOR VEHICLE / TRAIN CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Killed	Injured
100,000 and Over	0	0	13	13	0	0
50,000 - 99,999	0	2	3	5	0	3
25,000 - 49,999	0	2	10	12	0	4
10,000 - 24,999	1	4	11	16	1	6
5,000 - 9,999	1	0	2	3	1	0
2,500 - 4,999	0	2	5	7	0	3
1,000 - 2,499	0	1	2	3	0	1
Under 1,000	6	21	19	46	7	28
Unknown	3	13	7	23	6	18
Total	11	45	72	128	15	63

TABLE 9.07

CONTRIBUTING FACTORS IN 1993 MOTOR VEHICLE / TRAIN CRASHES

Contributing Factor	Number	Percent
Human Factors		
Failure to Yield Right of Way	50	28.7%
Driver Inattention/Distraction	46	26.4
Disregard for Traffic Control Device	20	11.5
Illegal or Unsafe Speed	6	3.4
Vision Obscured	5	2.9
Physical Impairment	8	4.6
Improper Parking/Starting/Stopping	6	3.4
Driver Inexperience	6	3.4
Unsafe Backing	1	0.6
Failure to Use Lights	1	0.6
Improper Turn	1	0.6
Improper Lane Use	1	0.6
Other Human Factor	2	1.1
Vehicular Factors		
Skidding	10	5.7
Defective Equipment	1	0.6
Miscellaneous Factors		
Weather Conditions	7	4.0
Other	3	1.7
Total	174	100.0%
No Improper Driving	9	
Number of Drivers	134	

Zero, one, or two contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. No contributing factors are cited for train operators.

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